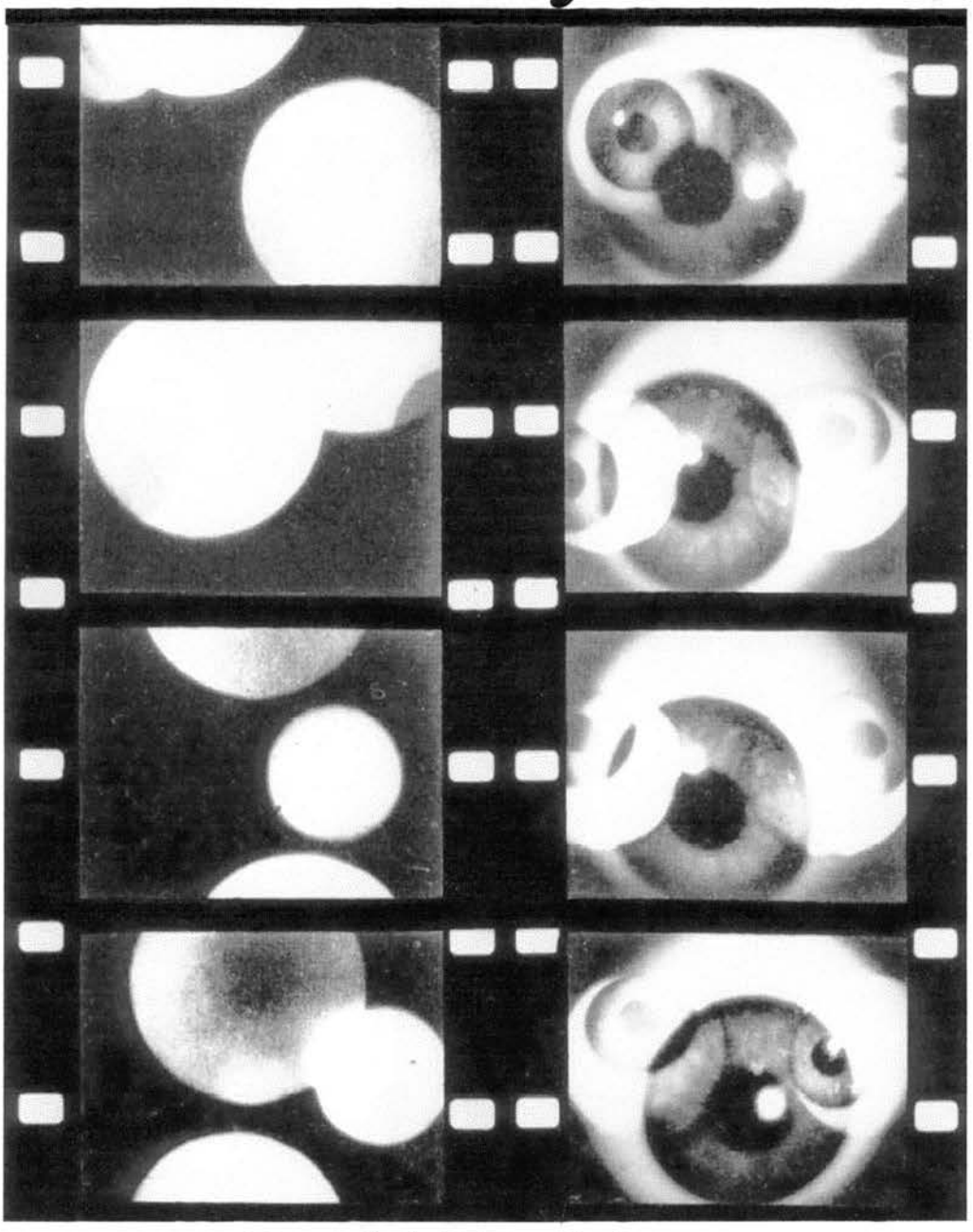
The Sensory Screen



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THE SENSORY SCREEN : PHENOMENOLOGY OF VISUAL PERCEPTION IN EARLY EUROPEAN AVANT-GARDE FILM.

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The Sensory Screen: Phenomenology of Visual Perception in Early European Avant-Garde Film

At the beginning of the twentieth century, certain artists, writers, and philosophers became intrigued by the profound ways in which filmic images could pervade aspects of modern thought and experience. For them, film had the potential to reveal radical new dimensions of sensory phenomena. The early development of avant-garde film-making in Europe is culturally crucial not only for its historical and conceptual context of creative transition, but also for its dynamic exploration of processes of visual perception. The central objective of this thesis is to expose and engage these profound perceptual issues within the specific sphere of graphic abstract film. The structural formation of the thesis entails the confluencing of material for analysis into a sequence of key areas comprising the central components of avant-garde cinematic visualisation. The visual implications of each area are analysed in specific depth, whilst acknowledging their respective interactivity. Significantly, the research applies analytic theories of phenomenology in order to focus incisively upon relevant early European avant-garde filmic imagery. The potential vitality of a phenomenological theorisation of early avant-garde film resides not only within their historical contemporaneity, but at the epistemological level of the mind's cognitive engagement with the realms of creative visualisation. It is a system of analysis which aims to establish a nuanced phenomenological theory of visual perception as a matter of prime sustenance to historically crucial cinematic art forms.

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INTRODUCTION

A remarkable characteristic of modernity and the modern experience is the emphasis which is placed upon visuality. The German philosopher Martin Heidegger gave an early indication of the urge toward defining experience through visual means in his description of the emergence of what he called the world picture. He stated:

> ... a world picture . . . does not mean a picture of the world but the world conceived and grasped as a picture . . . The world picture does not change from an earlier medieval one into a modern one, but rather the fact that the world becomes a picture at all is what distinguishes the essence of the modern age.[1]

Such pervasive processes of visualisation distinguish the modern era significantly from earlier historical periods in which pictures were regarded as being iconic, and intimately enmeshed with the object of their representation. In the case of religious imagery, the picture was itself imbued with elements of divine power and significance. In stark contrast, modernity manufactures infinite reproductions of imagery in an inseparable stream of vision which Walter Benjamin famously described as the 'age of mechanical reproduction'. Photography, of course, has rapidly evolved into the key means of interpreting facets of reality, stemming from its radical revolutionisation of the authority of the image. The authoritative status of the photographic image has now dramatically expanded into the diversity of contemporary visual imaging technologies. The complexities of fields as diverse as science, medicine, engineering and transportation now all regularly utilise advances

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[1] Heidegger, Martin, 'The Age of the World Picture' in William Lovitt (trans), *The Question Concerning Technology and Other Essays*. (London and New York: Garland, 1977). p 130.

in visual imaging, and whether it be to scan the brain or construct an engine, it is the power of the image which empowers understanding in an immediate, accessible and incisive manner.

Understanding the prevalent power of the image in the modern context does, of course, involve the necessary awareness of factors of historicisation. Visual imagery is subject to evolutionary processes of change, both in its relationship to the spectator and in its relationship with its subject. Philosopher Jean-François Lyotard has expounded that: 'Modernity, wherever it appears, does not occur without a shattering of belief, without a discovery of the *lack of reality* in reality - a discovery linked to the intervention of other realities.'[2]

In this sense, then, various modes of representing reality alternately emerge and recede, but invariably interact. In view of the ongoing historical proliferation of images as a communicative force, and the possible implications of this phenomenon, it seems increasingly essential to focus attention upon the expressive powers of the image within a key, media-specific, critical context. It is the central aim of this thesis to take up that challenge by intensively theorising a particularly significant specified body of imagery which represents a crucial transitional phase both in historical and perceptual terms.

The radical reconfiguration of the concept of 'point of view' is central to the foundation of modernism. Indeed, in 'The Work of Art in the Age of Mechanical

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[2] Lyotard, Jean-François. *The Postmodern Explained.* (Minneapolis: Minnesota University Press, 1993). p 9.

Reproduction', Benjamin delivers his classic 1936 theory of the declining autonomous aura of the individual work of art, and directly relates this process to the technical transmission, and transmutation, of the work through the myriad channels of reproducibility.[3] The new technical capabilities of the twentieth century were rapidly undermining the previously stable viewpoint of the Renaissance perspective regime of vision. Paul Cézanne's paintings had begun to destabilise the fixity of the artist's viewpoint, incorporating the temporal dimension by building the passage of time into specific works, and a newly dynamic spatial dimension which deployed contrasting and colliding angles and planes of vision. Subsequently, the visionary fragmentation of cubism utterly shattered the fixed-focus gaze of naturalistic representation. By the dawn of the first avant-garde films, artists had discovered the possibilities of abandoning centred viewpoints, or of so dramatically destabilising them as to defy the comfortable coherent fixity of vision.

The earliest evidence of artists seeking to use film as a vehicle of avant-garde visualisation can be located in the enthusiastic discussions of Futurist, Constructivist, and Dadaist groups between 1909 and the early 1920s. These dynamic cores of progressive creativity involved the 'orphic cubism' of Robert Delaunay, Russian 'Rayonnisme', and experiments at the Bauhaus in 'lightplay'. In retrospect, it is clear that all of these developments had their roots in the radical achievements of Cubism as developed by Picasso and Braque.

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[3] Benjamin, Walter, *Illuminations* (London: Jonathan Cape, 1970).

Cubism, of course, has come to be widely defined as a vision of fragmentation, initially depicting objects from a variety of alternating angles, subsequently reconfiguring imagery through collages of layered print, paper, and paint. It can now be broadly understood as a rather potent symbol of its distinctive historical time, indeed Apollinaire noted the curious correlation between the new developments in painting and new developments in physics, yet it was also an intriguing catalyst for innovative experimentation in other areas of artistic endeavour. The painter André Derain described these processes of visual fragmentation as an art of 'deliberate disharmonies'. Interestingly, Derain was to become a mentor to the pioneering abstract film-maker Viking Eggeling. Such fragmentation can also be regarded as a historical parallel of emerging experiments in dissonance in both music and literature.

Similarly, the period from 1890 to 1914 can also be characterised as developing an understanding of methodology in both art and philosophy. Modern logical philosophy was founded around this time by Frege, Russell, and Wittgenstein, as was psychoanalysis by Freud, and phenomenology by Husserl. Temporality and perception were being theorised with new rigour in art, and the emerging popularity of cinema encouraged certain artists to attempt to set 'paintings in motion' through the fascinating new medium of film.

In 1918, Louis Aragon wrote in Louis Delluc's *Le Film*, that it was important for cinema to have 'a place in the avant-garde's preoccupations . . . if one wants to bring

some purity to the art of movement and light'.[4] The Cubist ethos of a quest for 'purity' emphasised rather more the notion of artistic autonomy, as opposed to seeking the basic, core characteristics of a specific medium. Thus, their preferred process involved entwined combinations of sources and materials to transcend conventionalised generic categorisations of representation. Such processes encouraged the Italian Futurist painter Filippo Marinetti to praise the concept of 'dynamic sensation' transcending the 'fixed moment' in terms which also clearly allude to a particularly filmic aesthetic. Thus, Cubism reveals its contextual and conceptual correspondences with its cinematic contemporary. Each in their specific formations demonstrating radical new possibilities for perceptual experience as they respectively destabilised established conventions of the image as an omnipotent icon for reality. It is in this sense, then, that Cubism crucially began to scrutinise assumptions about the cohesive interrelationships of sight and knowledge.

The aspiration toward a form of 'purity', exemption from the shackles of objective representation and linear narrativity, had always been at the heart of the Cubist aesthetic ideal - even since their earliest exhibition in 1907 - yet the concept of 'cinematic purity' was limited to some extent by the rapid development of conventionalised processes of melodrama, historical epic, romantic fantasy, and theatricality rooted in dramatic realism. Far from aesthetic purity, these developments were regarded by many artists as a contaminated disarray of pictorial and literary legacies. Such commercialised tendencies led pioneering modernist

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[4] Aragon, Louis, quoted in Richard Abel (ed), *French Film Theory and Criticism Vol I 1907-1929.* (Princeton: Princeton University Press, 1988).

visionaries to seek more radically subversive channels for the quintessentially modern medium of film.

Both Picasso and Braque had elucidated new means of configuring and connecting the spatial and the temporal. Their Cubist experiments had transcended the static single viewpoint, fixed both in space and time, to present an evolutionary series of alternating angles and perspectives. The solid foundation of acknowledged visual representation was now under serious scrutiny. Furthermore, these radical paintings also daringly revealed the textural surface facture, revealing their processes of creation and manipulation. Art such as this sought to integrate direct visual sensation, and its liberated fluidity, with the solid structural armature of the specifically foregrounded medium. Yet this achievement was also radical in its conceptual progressiveness and striking expansion of creative formalism. Cubism accentuated the critical role of cognition, emphasising perceptual knowledge over representational sight. Instead of concealing the detachment of object and appearance, through technical conventions, they embraced open ambiguity of vision. Indeed, Norman Bryson has noted that: "the Cubist experiment sought a way to break the analogy between picture and perception which had governed most of painting's history since the early Renaissance."[5]

Thus, Cubism may be said to have injected modernity with the 'methodology' which artists sought in the early years of the twentieth century. This was achieved by separating the pictorial signifier from the domain of observational fact. Indeed, the

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[5] Bryson, Norman, 'The Commonplace Look: Objects and Culture' in *Times Literary Supplement*, no 4933, 17 October 1997, p 20.

sign itself, the surface medium, came to refer to itself as well as the object of its representation. Although the philosopher Henri Bergson had been critical of film for the way in which it manipulated temporal progression, his highly filmic analogies seem to parallel and incisively describe the modernist essence of visuality. He stated that form was merely the snapshot view of a transition. This is a statement that virtually defines Cubism itself. Bergson was opposed to the ways in which temporality is regarded in terms of spatiality, depicted in linear form with interspaced 'moments' at various locations. He suggested that temporality is experiential and a process of total duration, an ongoing stream of flowing organic continuity. This characterisation of the modern experience as a type of stream of consciousness has, at its core, a remarkably filmic quality. The writer Gertrude Stein, intriguingly, acknowledged her debt to a filmic sensibility in terms of her tendency to write in the continuous present. Additionally, Ezra Pound famously regarded poetry as a specifically visual phenomenon. In 1913, he developed his formula for a new poetics of 'imagism'. The 'image' being the presentation of an emotional complex in an instant of time. It is a concept permeated with the crucial characteristics of the experience of filmic fluidity.

In a variety of subtle but crucial ways, then, film may be seen to pervade aspects of modern thought and experience, stimulating numerous writers, thinkers, artists, and others. Cinema's commercialisation, of course, was rapid and relentless - enveloping vast audiences in the spell of melodramatic fantasy, driven directly by linear narrative trajectories derived from literature and theatre. Yet for many artists, film still held the power to unleash a rigorous, radical and revolutionary era of visual

experience. In this regard, film could generate new processes of awareness, new comprehension of the curiosities of spatio-temporality. Among such artists were the abstract painters Walther Ruttmann, Viking Eggeling and Hans Richter, working in Germany, and in France the diverse creative talents of Fernand Léger, Man Ray, Marcel Duchamp, and René Clair. Film making was, for them, part of a dynamic process of thrusting forward the boundaries of avant-garde visualisation, drawing strongly upon the distinctively radical aesthetics of Cubist influenced painting, collage and assemblage. Certainly, the earliest emergence of modernist artforms were profoundly influenced by the new era of mechanisation and optical technologies, yet it also seems clear that deeper perceptual implications developed as the world increasingly came to be experienced as an overlapping, juxtaposing, oscillating multiplicity of visual aspects. Multiple aspect perception, of course, thus implies the concept of spatio-temporality: vision perpetually enmeshed with time. In 1916, Hugo Munsterberg wrote what is still generally regarded as the first major work of film theory.[6] Entitled *Film: A Psychological Study*, it suggests that the viewer's perceptions of an external world recede as film carves out an internal world of the imaginary, exempt from direct causality, space, and linear temporality. In the hands of early European avant-garde film-makers, this internalised spatio-temporal sphere would attain potent perceptual properties. To them, film was both a malleable strip of transparent material which was activated not only when it ran through the projector, but also when it ran through the mind's eye of the viewer.

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[6] Munsterberg, Hugo, *The Film: A Psychological Study* (1916). (New York: Dover, 1970).

Since Munsterberg's seminal work of film theory, of course, there have been a multitude of ideas written about the communicative processes and effects of film. Indeed, these have extensively reflected the diverse properties and capabilities of the filmic medium. To date, the key major branches of film theory appear to have congregated around the particular areas of genre, narrative, authorship, psychoanalysis, ideology, structuralism, and semiotics. Film theory has sought to systematically dissect and analyse almost every component part of film. It is rather surprising, therefore, to discover the limited level of attention which has been devoted to the study of the filmic image itself - to the pure phenomenological processes of film *vision*.

In response to this situation, it seems particularly valid to endeavour to address issues relating to the purely visual elements of film as a means of expression, to the forms, structures and properties of such processes of visual expressivity, and to the nature of perceptual responses to visually expressive filmic imagery. In short, to explore how the phenomena of pure filmic vision may be directly expressed. The objective of this thesis is to present an original work of research which will strive to catalyse, confront, and engage these very issues. The research will deploy an analytic process of visual theorisation in order to construct a framework for a phenomenological methodology, focusing upon the particularly visionary elements of early European avant-garde film making which form the critical fulcrum of the enquiry. The early phases of the development of avant-garde film-making in Europe are of exemplary significance not only for their historical and conceptual contexts of transition, but

also for their vivid inherent thematisation, problematisation, and intensive interrogation of the processes of direct visual expressivity and perception.

It is important to point out here that the key aim of this research is to construct a theoretical platform upon which detailed information about cinematic imagery may be explicated and illuminated, from the perspective of visual perception, within the context of a specified range of material. The goal is not to attempt to describe generalised information about cinema from the perspective of respective film-makers, nor to consider in depth the technical methods and mechanical procedures used in production. Neither is the main objective to ascertain details about directorial personal intentions or opinions of work, although, to a very limited extent, these may be considered under certain circumstances where required. The crux of the research is the demonstrative utilisation purely of filmic imagery for the purposes of perceptual analysis, and the consideration of this imagery as a series of textual entities entirely for their intrinsic qualities, properties, and forms in their own right.

The structural formation of the thesis itself will entail the confluencing of material for analysis into a sequence of specific key areas which comprise central components of cinematic visualisation and the filmic image. These respective areas are: light, colour, and composition. The visually expressive capabilities and effects of each will be analysed in specific depth. However, in acknowledgement of the interactive nature of these elements, there will be an integrational approach permeating the analysis of each area on an ongoing basis throughout the work embracing space, time, and motion.

Most significantly, the research will adapt and develop terminologies and analytic theories of phenomenology in order to focus with particular incisiveness upon relevant European avant-garde filmic imagery of the early twentieth century. Phenomenology is, literally, the analytic theorisation of appearances. Specifically, it refers to a movement initiated by Franz C Brentano[7] (1838-1917), and developed in particular by Edmund Husserl[8] (1859-1938). This initially emphasised the analysis of human experience as directed onto objects, but was moved by Husserl away from the analysis of experience towards analysis of the objects of experience themselves. He described these objects as phenomena. A phenomenon, a verbal noun from the Greek verb 'to appear', can be observed and perceived with the senses and with the mind.

A number of theorists have applied phenomenological concepts and methodologies to their study of a variety of themes. In this manner, for example, Edmund Husserl[9] developed transcendental phenomenology, the science of intuitive investigation of the structure of pure consciousness; Max Scheler[10] (1874-1928) and Alexander Pfänder[11] (1870-1941) explored structures and interconnections among phenomena and intraconnections within them; Martin Heidegger[12] (1889-1976) developed

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[7] Brentano, Franz C, *Psychology from an Empirical Standpoint*. Translated by A C Rancurello et al. (London: Routledge, 1974).
[8] Husserl, Edmund, *The Idea of Phenomenology*. Translated by W P Alston and G Nakhinikian. (The Hague: Nijhoff, 1964).
[9] Husserl, Edmund, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, First Book*. Translated by F Kersten. (The Hague: Nijhoff, 1982).
[10] Scheler, Max, *The Nature of Sympathy*. Translated by P Heath (New Haven: Yale University Press, 1954).
[11] Pfänder, Alexander, *Phenomenology of Willing and Motivation*. Translated by H Spiegelberg. (Evanston, Illinois: Northwestern University Press, 1976).
[12] Heidegger, Martin, *Being and Time*. (Oxford: Blackwell, 1962).

hermeneutic phenomenology, whose task was to arrive at meanings of phenomena pertaining to human existence; Moritz Geiger[13] (1880-1937) was the first theorist to study aesthetics with phenomenological methodology; and Maurice Merleau-Ponty[14] (1908-1961) is best known for his analyses of the phenomena of consciousness and visual perception.

The potential vitality of a phenomenological theorisation of early avant-garde film resides not only within their historical contemporaneity, but at the epistemological level of the mind's cognitive engagement with the realms of creative visualisation. Indeed, the dominant instrument of such a filmic phenomenology will be the sensory procedure of visual perception. It seems high time that the avant-garde's direct filmic visualisation, itself, is elevated from its currently obscuring veil of uncharted mystery.

Edmund Husserl's phenomenological methodology for interpreting the nuances of perceptual processes and his theories relating to creative representation, as predominantly examined and applied in this thesis, may explicate critical aspects of avant-garde film visualisation in a progressively experiential manner. Husserl's phenomenology actuates the concept of simultaneously perceiving and apprehending both subject and object in the cognition process whilst retaining an understanding of the very act of perceiving as itself an autonomous object. This is a concept which seems to incisively parallel ideas operative within early avant-garde film work which

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[13] Geiger, Moritz, *Zugänge zur Ästhetic.* (Leipzig, 1928).
[14] Merleau-Ponty, Maurice, *Phenomenology of Perception.* Translated by C Smith. (London: Routledge, 1962).

simultaneously constructs complex illusory dimensions whilst foregrounding the constructedness of the malleable medium of such illusions.

The articulation of the filmic image emerges rapidly and often below the level of consciousness. When visual stimulus material is complex or ambiguous, the viewer must attempt to assimilate a sense of expressive structure which defines elements and relationships of meaning. Certainly, such visual depth and complexity was a very characteristic element of much early European avant-garde film-making, assuming a far greater degree of significance than the pronounced narrative, character, and generic conformity typical of most mainstream commercial production values. Thus, there are particularly significant critical opportunities within the context of early European avant-garde film to analyse the phenomenological processes which characterise the varied and intriguing components of such cinematic imagery. The intended research objective here, then, is that such challenging and fascinating imagery is examined, evaluated, and phenomenologically theorised predominantly through direct visual experience and sensory response. It is a system of analysis which intends to catalyse and develop a nuanced and specialised phenomenological theory of visual perception and expressivity in film as a matter of prime significance and sustenance to experimental cinematic texts.

The intriguing concept of the image, in its diversity of formations throughout the evolving modes of representation, clearly has a vital role in processes of expression and perception. The focusing of intensive phenomenological theorisation upon a specific historical body of filmic imagery aims to reveal important and innovative

evidence about the visually expressive factors which function in the vibrancy of radical cinematic art forms.

These are the factors, therefore, which will be explored, assessed, and illuminated in *The Sensory Screen: Phenomenology of Visual Perception in Early European Avant-Garde Film.*

I. FOUNDATIONS OF A FILMIC PHENOMENOLOGY: THEORISING CINEMATIC COGNITION AS DIRECTLY EXPRESSIVE VISUAL SENSATION

The proposition implied in the concept of founding a form of filmic phenomenology is that the innate procedures of cinematic cognition do not reside exclusively within conventionalised linear thought patterns, but are in fact implicitly connected or intraconnected with the very core components of cinematic cognition and the direct screen experience itself. Conventionalised linear thought patterns, as acquired processes, may seem to be regarded as existing in detachment from directly expressive sensation. The phenomenological proposition refers to matters of visual apprehension, including: assimilative consideration; discernment; comprehension of key elements; reduction; abstraction; contextualisation; and integration or segregation. These matters are not confined to the sole discretion of a singular thought pattern, but are highly pervasive processes through which sight and sense correlatively absorb the direct multiplicity of visually expressive filmic data.

Early avant-garde film-makers placed a powerful emphasis upon the pure visual primacy of the medium of film. Indeed, Man Ray described his 1926 film *Emak Bakia* as a work which was: "purely optical, made to appeal to the eyes only."[1] In this regard, there are no rigidly divisive boundaries between the processes activated when a viewer directly witnesses such filmic imagery and when a viewer indirectly absorbs such filmic imagery, between the impacts of seeing and the effects of sensing. There have been numerous statements by early avant-garde film-makers emphasising their fascination with the idea of a filmic art of pure vision. This

location of their art and its sources in the heart of the sphere of visual perception is something which ought to be scrutinised in the literal sense, and the implications for the ethos of avant-garde film tendencies thus drawn forth. Contrastingly, then, there emerges the avant-garde's historical fixation upon the purity of vision, upon the film work as a retinal art form, and the implicit role of processes of visual perception and physiology of sight. The early avant-garde film, in this sense, represents the seminal confluencing of the technical and the organic, of the filmic and the perceptual, into a cohesive unified discourse on the aesthetics of modern visuality.

The term 'cinematic cognition' implies the full engagement of multiple mental procedures required for the reception and assimilation of visual filmic data, as well as the concurrent procedures of recollection, consideration, and interpretation, inclusive of the sensory realms of perception. This particularly phenomenological application of cognitive process is profoundly distinct from those in much general usage in many established fields of psychology. These generalised psychological applications frequently prohibit the dynamics of the cognitive realm from those of the sensory realm. It is precisely such a perceptual prohibition, or ostracism, which a phenomenological methodology for film theorisation might strive to transcend. Therefore, in the specific case of a phenomenology of cinematic cognition, a reciprocally pervasive definition of the cognitive as actively embracing that of the sensory, becomes applicable. From this perspective, then, cinematic cognition and visual sensation are inhabitants of the same cerebral sphere and, as such, are inextricably engaged in a mutually dynamic process of interaction.

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[1] Man Ray, *Self Portrait*. (Boston: Little, Brown, 1963), p 273.

Certain theorists, including Roland Barthes[2], have alluded to the idea that the dynamic transitory nature of motion pictures makes static images, such as photography, more involving than film, in which the viewer's perceptual engagement with the images is perpetually transformed. Christian Metz[3] has stated that spatio-temporality in film is subsumed by narrational linearity when images are sequenced into a story-based structure and, thus, the images become a form of language. Yet Barthes' structuralist perspectives are necessarily static in their object-orientation, and his structural theories seek to describe the objective structures of texts rather than the perceptual processes of the mind that initiate such structures. Metz's conception of language as emerging from social systems, and the relationship between signifier and signified, is not a fertile basis for the interpretation of the direct sensory procedures of the mind. Indeed, it is detrimental to enhancing knowledge of the ways in which vision operates according to non-linguistic principles and the various forms of perceptual phenomena processed by non-linguistic means, frequently by innate and non-arbitrary procedures. Structuralism and language-based semiotics, then, are problematic in terms of their respective abilities to analyse purely visual expression, as visual phenomena are frequently directed through channels of response quite distinct from language alone.

It is instructive, nevertheless, to consider here the understandably valid bases of established aspects of discourse in film theory. The structures of narrative films do have frequently linear configuration which is similar to language. The weighty

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[2] Barthes, Roland, *Camera Lucida*: *Reflections on Photography*. (New York: Hill and Wang, 1981).

schools of thought including structuralism and semiotics have, however, occasionally felt it necessary to attempt to atone somewhat for their conventionalised theoretical schism between the cognitive and the sensory.[4] Focused upon the apparent functionality of a unitary theoretical paradigm, it has become an extensively accepted practice to delineate a series of rather rigid parameters between the filmic data the viewer absorbs visually and the linearly assimilative inflections through which such filmic data is inculcated. The cinema screen beams its flickering illuminant imagery into the mind's eye of the viewer, and this imagery acts as a type of base substance which is subsequently probed, assessed, restructured, and registered. A clear allusion would appear to be made here that the viewer may be in possession of the distinct, and somehow detached, mental procedures of deferential filmic absorption and inferential filmic assimilation. Initially, the theoretical perspectives alluding to such a process of detachment undeniably appear to be almost entirely validated by certain rudimentary key concepts. Using a physiological metaphor as an example, the viewer's eye receives a projection of imagery upon the retina which is a compacted, yet still apparently precise, vision of the on-screen scenario upon which the viewer gazes. Although a perhaps pleasing metaphorical equivalent of technical film-screen projection, this physiological image projection upon the retina must, surely, become a merely representational image solely through cognitive processing rather than a replicational image, such as that obtained through technical processing. Consequently, it would seem perfectly convincing to articulate cinematic cognitive

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[3] Metz, Christian, *Film Language: A Semiotics of the Cinema*. (New York: Oxford University Press, 1974), p 21.

[4] Wollen, Peter, *Signs and Meaning in the Cinema, Expanded Edition.* (London: British Film Institute, 1998) pp 154-183.

inflections as occurring within a detached perceptual process, somehow ostracised from the sensory realm - from visual sense.

However, the apparent salience of a conceptual detachment, or rift, between what may be described as a deferential process of filmic absorption and an inferential process of filmic assimilation, neglects the dynamically cohesive and interpenetrative qualities of both cognition and sensation as an innate and crucial component within the pervasive holistic impacts of visual expressivity in film.

A famous pioneering theory seeking to integrate visual perception with film aesthetics was Rudolf Arnheim's now classic *Film as Art*. Arnheim interestingly utilises certain perceptual theories of Gestalt psychology combined with a fascination with what he describes as *'Materialtheorie'*. He reflects upon the origins of his influential ideas:

> It was a theory meant to show that artistic and scientific descriptions of reality are cast in moulds that derive not so much from the subject matter itself as from the properties of the medium - or *Material* - employed. I was impressed by the geometrically and numerically simple forms, by the regularity and symmetry found in early cosmologies as well as in Bohr's atomic model, in philosophical systems, and in the art of primitives and children. At the time, my teachers Max Wertheimer and Wolfgang Köhler were laying the theoretical and practical foundations of gestalt theory at the Psychological Institute at the University of Berlin, and I found myself fastening on to what may be called a Kantian turn of the new doctrine, according to which even the most elementary processes of vision do not produce mechanical recordings of the outer world but organise the sensory raw material creatively according to principles of simplicity, regularity, and balance, which govern the receptor mechanism.[5]

Although Arnheim considers some of Walther Ruttmann's work in *Film as Art*, he neglects to consider his early graphic abstract films or the detailed implications of avant-garde achievements in film. Gestalt psychology has also, however, been utilised by Slavko Vorkapich in a series of lectures entitled 'The Visual Nature of the Film Medium', delivered at the Museum of Modern Art in New York in 1965, and quite thoroughly collected in *Film Culture*.[6] It would appear, though, that only some of the opening lectures relate primarily to perceptual matters, and Vorkapich's engagement with early avant-garde film is severely limited in scope. Furthermore, detailed research in the late twentieth century has revealed a variety of key failings in gestalt theory. Neuropsychologist R L Gregory states:

> When we look at something, the pattern of neural activity represents the object and to the brain *is* the object. No internal picture is involved. Gestalt writers did tend to say that there are pictures inside the brain. They thought of perception in terms of modifications of electrical fields of the brain, these fields copying the form of perceived objects. This doctrine, known as isomorphism, has had unfortunate effects on thinking about perception. Ever since, there has been a tendency to postulate properties to these hypothetical brain fields such that visual distortions, and other phenomena, are 'explained'. But it is all too easy to postulate things having just the right properties. There is no independent evidence for such brain fields, and no independent way of discovering their properties. If there is no evidence for them, and no way of discovering their properties, then they are highly suspect. Useful explanations relate observables. The Gestalt psychologists did however point to several important phenomena. They also saw very clearly that there is a problem in how the mosaic of retinal stimulation gives rise to perception of objects. They particularly stressed the tendency for the perceptual system to group things into simple units.[7]

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[5] Arnheim, Rudolf, *Film as Art*. (London: Faber and Faber, 1983), p 12.
[6] Kevles, Barbara, 'Slavko Vorkapich on Film as a Visual Language and as a Form of Art', *Film Culture* 38 (1965) pp 1-46.
[7] Gregory, R L, *Eye and Brain: The Psychology of Seeing*. Fourth Edition. (Oxford: Oxford University Press, 1994), pp 9-10.

The aesthetic theories drawn from Gestalt psychology, then, may well be highly informative in terms of the formalist configurations of certain visual art forms, but its authentic foundation in the scientific reality operative in processes of visual perception may often be misguided.

In 1983, Jacques Aumont[8] published a concise but thorough article on visual perception and film theory, which also drew attention to the flaws in Gestalt theory. Aumont's compelling discourse develops the concept that issues of film and perception are intimately entangled, particularly in terms of the nature of the image and the means by which it may be perceived. Aumont accurately indicates that the image itself has received less analysis in much modern research into perception in comparison to the processes which generate the image. Indeed, such psycho-physiological processes have often been treated in terms of technological data processing than the projection of avant-garde celluloid imagery onto the screen surface. Nevertheless, neuroscientific research into visual perception can certainly make a valuable contribution to knowledge about filmic expression. In the ensuing chapter on light, neuroscientific research into vision may reveal that visual perception and film share a crucial reliance upon the motion of light through time, and that images themselves are constructed by the forms of moving facets of light which are processed perceptually by the brain and technically by the apparatus of film.

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[8] Aumont, Jacques, Points de Vue: 'L'oeil, le film, l'image', *Iris 1*, no 2 (1983), pp 3-13.

Confronted with filmic imagery, the viewer becomes pervaded by a preordained visual realm: a realm of the technical on-screen projection which bears a distinct similarity, indeed, to the physiological projection upon the retina in the context of its preordained nature. This preordained visual realm of filmic imagery is, apparently, autonomously actualised in the sense that the viewer need take no pronounced proactive measures for its generation. Yet what is the significance, if any, of this apparent lack of viewer proactivity in terms of perceptual image generation? Could it possibly be that such a deferential process of filmic absorption might represent, to use a classic phenomenological term, the 'essence' of visual sensation in film? Certainly, with due consideration, this cannot be the case. The preordained visual realm of film simply represents the spatial domain within which the most immediate element of imagistic sensation resides.

Pervading the depths and contours of that domain are the nuanced sensibilities of the viewer's impulsive gaze, propelled by focalisation, directly responsive to the selectivity and configuration of mise en scène, actualising the kinetic aesthetics of camera movements, collisions and contrasts of graphic structures, traversing the oscillating rhythmic implications of tonal, chromatic, and perspectival regimes. It is precisely such a vibrant and directly responsive imagistic process which a phenomenological methodology might penetrate with relevance to the sensory core of filmic visual expressivity. This equally concerns the concisely specific and intricate segments of filmic images, as well as the overall form of a film's spatio-temporal configuration of imagery, within which every visual component obtains relevance in its placement. The visual sphere engaged by this phenomenological

analysis needn't be restricted by a form of perceptual preordination. Its multiplicity of sensory nuances organically accumulate and variously associate, simultaneously conditioned by alteration and accentuation of perceptual primacy.

In what ways, though, do these phenomenological perspectives actually depart from what much established film theory has already concluded? A great deal of existing theoretical discourse upon screen interpretation may well be entirely congruent with the suggestion that processes of cinematic cognition actively engage matters of sensory impact. However, there largely remains the recurrent allusion to the concept of a cinematic cognitive process which, as a systematisation of sensory data, obtains a type of perceptual autonomy or sense exemption. Cinematic cognition, according to such potentially reductive conceptions, is composed of mental procedures enacted upon cognisable on-screen data. This filmic data becomes sense-exempt as soon as cognition metamorphoses unprocessed sensory-perception material into highly processed cognitive-conception material. The extractive nature of these perspectives is apparently intended to operate as a priming process, as a preparatory delineation which aims to disentangle the density of visual expressivity itself and consequently allow ease of access to the linear processes of mental cognisance.

The two main classic theories of film representation have traditionally, of course, been those of 'formalism' and 'realism'. The realist perspective historically advocated the existence of authentically truthful representations which enable the assessment of levels of realism in all forms of representation. The formalist perspective has suggested that representational forms obtain structural and stylistic devices which

may be assimilated in a manner similar to language. Realist theories of film, such as those developed by Siegfried Kracauer[9] and André Bazin[10], suggest the power of an omniscient perspective by which the 'truthfulness' of representation can be evaluated. Yet the use of concepts such as authenticity or truth is an external axiomatic system. Perception operates on an internal basis, by which evaluative judgements can only be made according to transient criteria at a particular time or place.

By contrast, formalism emphasises that cinematic interpretation relies upon a culturally acquired knowledge of the medium, its stylistic processes and configuration which allows deeper levels of access to the text. Typically, therefore, this requires a foregrounding of materials and techniques. Formalist theory promotes the importance of exposing the constructed nature of the film text, and the moulding presence of the film-maker's vision. For formalists, linearity of narrative structure was a negative factor as it encouraged viewers to experience film as a deceptive illusion. Foregrounding the processes of construction was a formalist attempt at shattering the illusory dreams of fabrication to further involve the viewer in the awareness of film's materiality.

The idea of film as the location of fascinating but illusory falsehoods was a factor in the development of psychoanalytic film theories. Such theories emphasised the role of the emotional and subconscious in film interpretation. Christian Metz[11] has attempted to offer explanations for the psychological allure of film and its

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[9] Kracauer, Siegfried, *The Nature of Film: The Redemption of Physical Reality*. (London: Oxford University Press, 1961)
[10] Bazin, André, *What is Cinema*? (Berkeley: University of California Press, 1967).
[11] Metz, Christian, *The Imaginary Signifier*. (Bloomington: Indiana University Press, 1982).

enveloping illusions. Among these explanations is the idea that filmic experience activates similar responses as those of a dream. Metz parallels the process of viewing a film with states of hallucination and somnambulism. There have, however, been a variety of recent strong criticisms made of the psychoanalytic interpretation of filmic experience, including those of Noel Carroll[12], and Dirk Eitzen[13]. Additionally, certain key psychoanalytic concepts in film theory such as the analogy of dream states have been vehemently contested by Carl Plantinga[14].

It seems readily acceptable that cognition and sensation in cinematic reception, despite their analytic dissociation to allow for the systematic aims of structuralist theorisation, are in fact engaged in an active process of reciprocation: the viewer's mind affects what is seen upon the screen and, reciprocally, the imagery of the screen affects the mind of the viewer. Yet exactly how salient is it, in practice, that this direct reciprocation can occur between two such traditionally discrete modalities?

The brief example of a concept intended for further examination in the subsequent sections on perspective and spatiality may be of some illustrative value here. The film viewer's perception of the scale of on-screen objects and images frequently does not correspond with the actual relativities of scale physiologically projected upon the eye. In this regard, for example, the striking images of Walther Ruttmann's profoundly influential film *Berlin, Symphony of a Great City* (1927) seems to be of particular relevance. With its imagistic ethos of rhythmic motion and formation, the

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[12] Carroll, Noel, *Mystifying Movies: Fads and Fallacies in Contemporary Film Theory*. (New York: Columbia University Press, 1988).

[13] Eitzen, Dirk, 'Attending to the Fiction: A Cognitive Account of Cinematic Illusion', *Post Script*, 13/1 (1994), pp 43-66.

film features the collision and impaction of multiple levels of spatial depth, and objects of dramatically decontextualised size and scale. In a specific sequence, a clock-face is rendered massive in scale when intercut with images of angularly interposed architectural structures and tiny figurative formations of vast numbers of people creating amorphously undulating crowds. One possible account for the viewer's perceptual screen interpretation of a scene such as this may be that the subversiveness of these images is stabilised by a subconscious process of assessment founded upon certain facets of factual data. A crucial distinction in this theory of screen perception resides within the question of whether it is to be accepted that the visual sensation derived from the imagistic projection upon the mind's eye of the viewer is as dynamically subversive as Ruttmann's original on-screen projection of imagery itself. If so, this subversive sensory base substance is processed via a form of influence related to the viewer's pre-existing realm of factual awareness. Of contrastingly crucial significance is the question of whether such a theory asserts that the imagistic screen perception experience itself is innately loaded with direct sensory triggers which immediately subject these images of the clock-face, people, and architectural structures to a perceptual relativisation of perspective, spatiality, and scale. In this particular instance, the filmic process of image perception is itself fulfilled within the realm of sensation, whereas in the previous instances, the process is concluded only in the wake of the reception of a predetermined, and therefore somewhat restricted, structural range of fixed signifiers.

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[14] Plantinga, Carl, 'Affect, Cognition and the Power of Movies', *Post Script*, 13/1 (1994), pp 10-29.

This line of conceptual contrast is significant and requires specific attention due to the fact that the key terms used, namely 'cognition' and 'sensation', as core elements of a visually perceptive process, are frequently applied with varying, even multi-accentual meanings. In many areas of aesthetic discourse, and with particular prevalence in certain aspects of film theory, terminological definitions for critical components of visually activated filmic perception are used with very tight restrictions. These allude merely to data which is absorbed by the sense of sight, only when this is affected by 'externalised' on-screen imagery contained within the authorial nature of an idiosyncratic directorial vision. The effects of this terminological application can be overly restrictive in many instances and, within the context of the objectives of this thesis, will be regarded as somewhat invalid due to their apparent exclusion of the processes of 'internalised' visually perceptive idiosyncrasies of the viewer.

J Dudley Andrew states in *Concepts in Film Theory* that: "Cinema is above all things a presentation of visual life itself." He proceeds to suggest that film is a medium which can be used to "pose questions about seeing"[15] Indeed, the examples he offers to define such notions are specifically avant-garde, however, it is an area which he ultimately fails to expand upon substantively, and the avant-garde questions about seeing remain unexamined. Yet the assertion that film represents "visual life itself" and the idea that avant-garde film specifically poses questions about seeing, offers a key foundation upon which an analysis of the visually perceptive aesthetics of avant-garde film may be constructed.

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[15] Andrew, J Dudley, *Concepts in Film Theory*. (Oxford: Oxford University Press, 1984), p 35.

In yet other areas of cine-aesthetic discourse terminological definitions for filmic perception can be far more expansive, to the point of a wide inclusivity of multiple forms and levels of informative data derived from all components of the cinematic realm. In this case, for instance, the term filmic perception makes allusion to an interminable range of generally, as well as specifically, convoluted mechanisms through which the film viewer becomes empowered with the informational content of the filmic material. This involves not simply the relevant sights and sounds, or assorted atmospheric devices, but additionally the aspects which are revealed via the inferred implications of a film's iconography, narrative transitivity, authorship, and genre convention. Certain elements of these processes of apprehending informative cinematic data might not be considered as procedures occurring within purely sensory domains, however they are in some instances entangled with the sensory mode through generalised implication. Those theoretical perspectives which apply the definition of filmic perception with such generality might very well resort to the broad claim that filmic cognition somehow envelops filmic sensation. In making such a claim, though, they obscure the entire scheme of sensorial analysis, and consequently evade the critical conceptualisation of pure visual expressivity in film.

The cinematic expressivity of vision stems from the optical and technical processes of filming and screening images. These processes, of course, differ significantly from those of visual perception, yet they are often constructed in such a way as to reflect elements of an environment we are familiar with seeing. This idea has become a convention of the mainstream cinematic codes of realism. Such

conventions rapidly formed in early cinematic representations which delivered a manufactured rendering of 'visual life' which was a controlled, sharply focused, coherent reproduction of readily identifiable scenes safely anchored in three-dimensional spatial stability. It may be acceptable to recognise these visual conventions as reflecting aspects of the environment through normal visualisation, yet it is also true that the environment can be visually perceived in quite radically different and distinctive ways. To convey expressions of such alternative methods of visual perception, early avant-garde film-makers recognised the opportunity to disrupt the onset of standardised conventions of filmic visualisation. In so doing, they initiated a process of questioning seeing, and these questions involve both the technical apparatus of film-making and the sensory procedures of visual perception.

Therefore, a detailed scrutiny of avant-garde film and its parallels of visual perception must acknowledge the fact that human vision absorbs a broad spectrum of diverse means of seeing. Beyond the conventions of stable, focused, fixed perspective vision there are such things as peripheral vision, illusory and hallucinatory sights, hypnotic imagery, as well as distortion and visual rhythm. There have been scientific analyses of such visual phenomena as these, as well as the aesthetic analyses of various visual artists which have served as demonstrations of the diverse complexities inherent to the processes of visual perception. The early avant-garde film-makers emphasised the importance of drawing attention to the nuances and scope of the full capabilities of sight. This included the crucial and historic recognition that filmic vision ought to embrace the multiple possibilities of seeing, rather than accede to a rigidly codified conventionalisation of visualisation.

Indeed, it was in this pioneering spirit of visual multiplicity that Fernand Léger asserted: "The image must be everything."[16]

The radical and innovative images created by certain early avant-garde film-makers were historically and perceptually transitional achievements which posed challenging questions about the very act of seeing itself. Viewers of such works were confronted by significantly more complex and dynamic experiences of visual perception than those of the conventional theatrical film presentation. The twin perspectives of the scope of cinematic representation and the nuanced range of possibilities of human visualisation, can be conceptualised as a dialectical interface between filmic technology and visual perception. This interface between eye and screen will serve as a key foundational component in the theorisation of a phenomenology of visual perception in early avant-garde film.

In an expansive overview of the historical evolution of avant-garde film, David Curtis noted the significance of the interface between eye and screen and suggested that avant-garde film-makers "have explored the camera's ability to emulate and enhance human visual perception - the unbiased use of the eye and the complex visual judgements of the mind."[17]

However, Curtis makes these remarks very briefly and does not go on to develop any extensive theoretical methodology for specific textual analysis. Similarly, Parker Tyler emphasises what he describes as the voyeuristic tendencies of avant-garde

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[16] Léger, Fernand, 'Functions of Painting', unpublished manuscript quoted in *Film as Film: Formal Experiment in Film, 1910-1975.* (London: Arts Council, 1979), p 41.

film, but his *Underground Film: A Critical History*[18] remains limited both in historical breadth and perceptual analytic depth. Both Curtis and Tyler have, of course, drawn wider attention to the ongoing achievements of avant-garde film and its cultural frameworks. However, neither writer has intensively sustained an analysis of the role of avant-garde film in scrutinising and illuminating aspects of visual perception. A work which does explore the implications of perceptual processes is Maureen Turim's *Abstraction in Avant-Garde Films*[19], which applies theories of semiology and psychoanalysis to the radical reconfigurations of avant-garde imagery. Turim devotes particular attention to the psychological dimension rather than the processes of pure visual experience, but never neglects the crucial significance of the avant-garde's predominantly optical perceptual role in film.

Political and ideological issues have also often been applied to avant-garde film theory. Examples include Dana Polan's *The Political Language of Film and the Avant-Garde*[20], and Patricia Mellancamps' *Indiscretions: Avant-Garde Film, Video, and Feminism.*[21] Ideology enforces the significance of socio-economic factors in the generation of significance in avant-garde texts. These factors are seen as intrinsic to the processes of production and reception, and suggest that a key function of avant-garde film ought to be the reification and magnification of such factors to allow for a process of open cultural critique. Certainly, all films are objective artefacts generated by specific cultural conditions which influence their creation. Film

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[17] Curtis, David, *Experimental Cinema: A Fifty Year Evolution.* (London: Studio Vista, 1971), p 7.
[18] Tyler, Parker, *Underground Film: A Critical History.* (New York: Da Capo Press, 1995).
[19] Turim, Maureen, *Abstraction in Avant-Garde Films.* (Ann Arbor: UMI, 1985).
[20] Polan, Dana, *The Political Language of Film and the Avant-Garde.* (Ann Arbor, UMI, 1985).
[21] Mellencamp, Patricia, *Indiscretions: Avant-Garde Film, Video, and Feminism.* (Bloomington: Indiana University Press, 1990).

production is indeed, at all levels, an act of construction indissolubly connected with historical, material, and social influences. Yet what is lacking in the ideological methodologies of avant-garde film theory is the vital role, in the socio-cultural context, of detailed facts about the individual perceptual experience, and the process of translating the nuanced ranges of visuality into cinematic expression. These elements, furthermore, highlight the urgency of responding to the questions posed by the historical avant-garde about the nature of ways of seeing, and ways of comprehending contemporaneous cultural experience.

The predominant methodological intention of this thesis on processes of filmic perception will be to allot equal conceptual consideration to the cognitive and sensory realms, as inhabitants of the same sphere, embracing both conscious volition and unconscious reaction as well as linear mental assimilation and directly reflexive absorption. These responses may be instigated by specific cinematic imagery or innate components within the structure of a film sequence and, therefore, may be achieved through a phenomenological process of directly responsive perception and not necessarily that of only a single specified theoretical paradigm or unitary school of thought in film analysis. The key point in question here resides within those areas of film perception which are not merely the existing outcomes of structural, occasionally discrete, oscillations of attention in film studies (which are frequently entrenched within the terminological foundations of literature and linguistics), but within the innate characteristics of the human mind to instinctively scan and apprehend the dynamic flow of informative visual sense data surging between the screen realm and the perceptual realm.

Embarking upon an analysis of sensory responsiveness as an integral, and influential, component of filmic cognition certainly requires reasonably extensive establishing terms of justificatory definition. In this regard it is important to draw attention to the exemplary processes through which the utilisation of data derived from the purely visual sphere of an avant-garde film allows for considerably more constructive cognitive procedure than that of sensory limitation or deprivation. Even with some very basic examples, a certain series of layers of imagistic film-sensory responsiveness may be delineated. The Lumière brothers' famous projection of their very early film *L'Arrivée d'un Train en Gare de la Ciotat* (1895), which terrified the viewers with its depiction of a rapidly approaching locomotive, obviously conveyed a tangible responsive impact through the objective level of its realistic representation, yet also delivered a powerfully innate film-sensory reaction through its purely imagistic expressive devices in relation to the cinematically uninitiated context of the spectators. At perhaps a somewhat more intensive level of film-sensory visual affectiveness is the example of the work of Sergei Mikhailovich Eisenstein (1898-1948). In *The Battleship Potemkin* (1925), Eisenstein's organic contractions and accelerations of reflexive editing rhythm, in conjunction with the intensive impulses of colliding graphic contrasts and configurations, are virtually transcendent of the implications of objective content and begin to penetrate, with particular prominence, the core of the concept of pure film-sensory visual expressivity. In *The Film Sense*, Eisenstein expounds the specifically sensory significance of his distinctive editing style:

> In selecting the montage material which is to be fused into this or that particular image which is to be made manifest, we must study ourselves. We must keep sharp notice of the means and the elements through which the image forms itself in our consciousness. Our first and *most spontaneous* perceptions are often our most valuable ones, because these sharp, fresh, lively impressions inva*riably derive from the most widely various fields.*[22] (Eisenstein's emphases)

Dziga Vertov (1896-1954) was, like Eisenstein, a visionary Soviet montage film-maker and prolific theorist but Vertov placed particular emphasis on the importance of factual documentary film. Interestingly, though, Vertov was similarly fascinated by the idea of the immediate perceptual primacy of the filmic medium. He wrote that "the main and essential thing" about cinema was "the sensory exploration of the world through film."[23] For Vertov, the camera attained the status of organic, responsive, viscerality which embraced and exceeded the intrinsic capabilities of human visual perceptiveness. In his extraordinary 1929 film *Man with a Movie Camera*, Vertov ingeniously integrated a human eye with a camera lens, thus presenting a visual embodiment of the dialectical bond between visual perception and filmic representation. It is precisely such a bond which so potently influenced the development of the visually perceptive ethos of early avant-garde film. Indeed, the visual bonding of eye and camera lens, of sight and celluloid, was similarly utilised by Hans Richter (1888-1976) in his film of 1926 entitled *Film Study*. Richter stated that the aesthetic aims of his avant-garde film-works were "visual rhythm, released photographically."[24]

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[22] Eisenstein, Sergei, *The Film Sense*. (London: Faber and Faber, 1986), p 62.
[23] Vertov, Dziga, 'The Council of Three' (1923), in *Kino Eye: The Writings of Dziga Vertov*. Ed Annette Michelson, trans K O'Brien. (Berkeley: University of California Press, 1984), p 15.
[24] Richter, Hans, 'The Badly Trained Sensibility', (1924) in *The Avant-Garde Film: A Reader of Theory and Criticism*. Ed P Adams Sitney. (New York: New York University Press, 1978), p 22.

At the purest level of such rhythmic visual expression, entirely surpassing the linear processes of objective replication, is the avant-garde phenomenon of filmic abstraction. The examples produced by Richter and his occasional creative collaborator Viking Eggeling (1880-1925), particularly in the early 1920s, convey the direct visual expressivity of shape, line, light, and form in the dynamic sphere of vibrant, regenerative, and oscillating motion. Their purity of dynamically expressive filmic sensation was strongly analogous to the innate tropic procedures through which the film viewer intuitively reacts to the engagements and evasions of imagistic impulses, and entirely correspondent with the actively organic instincts of immediate environmental observation and sensory reflex.

Such sensory reflex can, in this regard, be described as 'discerning'. Quite specific characteristics are of relevance to this 'discernment' within the sensory reflexes of vision. Amongst these characteristics is the process of apprehending direct visual data via a form of perceptual detachment. It is this sense of detachment which can give significatory breadth to filmic phenomena and, additionally, separate the viewer from a saturating immediacy of presented on-screen imagery. To detach from, or transcend, the direct immediacy of screen imagery, and of the viewing situation, allows the avant-garde film viewing experience the opportunity to absorb and assess the developments of visual material with more objective persectival regimes. The term 'objective' is used in this sense as part of a process of enabling the viewer to focus purely upon a film's visual material *itself*, as opposed to its mere utility or functionality in the subdued service of narrativity or representation. The concept of processes of detachment in the perceptual sphere is a key component in the theories

of pioneering phenomenologist Edmund Husserl. In *The Paris Lectures*, a complex overview of his philosophical perspectives written late in his career, Husserl states:

> This ubiquitous detachment from any point of view regarding the objective world we term the *phenomenological epoché*. It is the methodology through which I come to understand myself as that ego and life of consciousness in which and through which the entire objective world exists for me, and is for me precisely as it is. Everything in the world, all spatio-temporal being, exists for me because I experience it, because I perceive it, remember it, think of it in any way, judge it, value it, desire it.[25]

'Discerning' perceptual activity in a specific aspect of the avant-garde filmic experience is innately reliant upon the degree of expressivity within a film's visual content. It is frequently of great importance, although not universally essential, that such visual content provides a vibrant diversity and contrast of imagistic nuances. Certainly, many of the communicatory processes of conventional filmic interpretation may be capable of specific expressive nuance, yet these are highly dependent upon very linear methods of systematised structure and rigid formation for their generation of coherent significance or perceptual discernment. Conventional narrative transitivity, characterisation, dialogue, music, representation, and so on, may well be important significatory elements of a certain form of cinematic experience - if only through their collective processes of interaction - yet these only amount to a certain level of perceptual impact in terms of film's total sensory effects. Avant-garde film, through its insistence upon the penetrative primacy of pure vision, empowers shape, colour, rhythm, motion, even visual 'sounds', with extremely potent and sophisticated spatio-temporal form and import. Indeed, it is precisely these

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[25] Husserl, Edmund, *The Paris Lectures*. Trans P Koestenbaum. (Dordrecht: Kluwer, 1998), p 8.

qualities which elevate the medium of avant-garde film to such an intriguing level of significance as a phenomenological vehicle of visually discerning sensation. Pure visual sensation, in the cinematic context, may well be assisted by complementary signifying qualities, yet such complementary effects alone are by no means of the same gravity of impulse as the image itself, primarily due to the transcendent, or detached, quality of the filmic viewing sphere. In the case of narrativity, it is clear that the viewer is required to initiate a fixed directional procedure within certain pre-ordained events and occurrences, and be guided through the unravelling mapped out route, scene by scene, developing a somewhat systematic conception of an overall narrative arrangement leading inexorably toward some form of closure. In the imagistically oriented viewing sphere of avant-garde film, the eye instantly apprehends the expressive data from the screen surface, simultaneously absorbing the multiple effects of variations and oscillations of scale and perspective, recession, foregrounding, expansion, connection, and collision which resonate throughout and vitalise film's purely visual realm. Such immediacy and apparently tactile proximity of this sensorial schematic experience is viable only as a result of the fact that filmic imagery is derived from the reciprocation of optic projections of the screen and perceptual projections of the mind.

In *The Theory of the Avant-Garde*, Renato Poggioli claims that a key avant gardist tendency is to attempt to "reduce every work to the intimate laws of its own expressive essence or to the given absolutes of its own genre of means."[26] This idea of the essence or purity of a work was expressed in the late 1920s by the French

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[26] Poggioli, Renato, *The Theory of the Avant-Garde*. (New York: Harper and Row, Icon Editions, 1971), p 201.

experimental film-maker Germaine Dulac, who asserted that it was vital for the avant-garde to "divest cinema of all elements not particular to it, to seek its true essence in the consciousness of movement and visual rhythms."[27] Amongst the most prominent early theories relating to the idea of a filmic 'essence' emerged in the *photogénie* theory developed by Louis Delluc. This theory stems from Delluc's fascination with the idea of the purity of filmic images and the potent transformational capabilities of the screen context. Although some of the original elements of the *photogénie* concept were later absorbed and adapted by other theorists, including André Bazin, the key concept which Delluc concentrated upon was that although 'factuality' was the vital raw material of filmic imagery, this 'factuality' underwent a crucial process of transfiguration through the technical mediation of the screen and, whilst maintaining the central quality of 'fact', additionally attained a higher level of factual perceptual significance. For Delluc, this was film's defining phenomenon, or expressive essence.[28]

In Edmund Husserl's phenomenological analysis, ideas of the sensory would involve encounters with more than particular concrete perceptual objects. This implies that outside purely formal scientific cognition, perceivers cannot segregate categorial intuition from sensory intuition. Frequently, perceptions of the visual world may be treated as exemplifications of certain general 'types'. It is these 'types' which Husserl describes as 'essences'. These have to be distinguished in phenomenological analysis from the vast sensory sphere from which they emerge. They are objectively conveyed through experience, not built onto experience as a type of appendage.

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[27] Dulac, Germaine, 'The Aesthetics. The Obstacles. Integral Cinegraphie'. (1927), in *Framework* 19 (1982), p 9.

However, they can be intertwined with sensory raw material.[29] For Germaine Dulac, then, such essences in the cinematic context were to be located in "the consciousness of movement and visual rhythms". In the works of Hans Richter, Walther Ruttmann and Oskar Fischinger, the concept of symphonic visual rhythm was of particular significance. The idea of visual rhythm has a parallel in the concept of optical music, which may be of considerable instructive value in understanding the intensive perceptual penetration of the avant-garde's strategies of image and affectivity. Within the realms of noise, every component of audio structures may be allocated a precise location and effect relating to numerous aspects of the overall sonic arrangement or sequence. In the case of musical arrangements, perceptual responses relate purely to the forms and undulations of the sounds themselves, for their own sake and characteristics, making reference to experiential elements outwith the sphere of music's pure sound only obliquely. This might be accounted for by stating that the informative content of sound is somewhat restricted. The purely sonic information about a car, for example, would consist of little more than the engine or the horn. The communications of noise are restricted simply to those 'objective' sounds which emanate from their specific source. However, there is of course the considerably more expressive series of sounds contained within speech, yet these sounds are charged with significatory content only through their referential allusions to further objective or perceptual information. Returning to our consideration of music, as a form of pure expressivity or sensation it is, in itself, largely incapable of communicating outwith the sphere of musical language and reference. Despite the

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[28] Delluc, Louis, 'Cinéma', *Paris-Midi* (5 March 1919), p 2.

[29] Husserl, Edmund, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy. First Book: General Introduction to a Pure Phenomenology.* Trans F Kersten. (The Hague: Nijhoff, 1982), § 22.

interactions of image and music in certain examples of the avant-garde film, it is undoubtedly within the power of vision that these works locate their fullest articulacy of sensation, and a virtually infinite depth and intensity of expressive data relating to the objectives and occurrences of the external environment as well as to the imaginary, psychic, and perceptual universe of the inner mind. In this sense, therefore, we may regard vision, the predominant force of avant-garde film, as the predominant force of human thinking itself.

The importance of the visual impulse for the effective operation of the human mind is considerable. If the viewing process of the cinematic situation was a mere matter of submissively observing on-screen data, there may be the suggestion that limitation or exclusion of any connotative imagery may have its own profound implications. In many examples of early European avant-garde film, the concentration upon purely abstracted forms and structures, tonal or chromatic arrangements, leads the viewer to experience spontaneous mental endeavours to reconstruct or reconstrue limited or absent stimulatory material suggesting that, in contrast to merely passive absorption, the active probing of perceptions is a crucial component of avant-garde film as well as an essential aspect of full mental receptiveness. This ongoing reflexive interaction with the images of the avant-garde film is a mirror of the core procedures for the operation of sensory responsiveness.

Yet the reflexivity operative within such a viewing experience is strictly a functional and discriminating practice. We have previously considered the vibrant proactivity of the screen/viewer interrelationship; observing the particular visual formations and

sequences within the film, the viewer is engaged in a perceptual process of grasping at and embracing them. Perceptually, the spatial screen structures envelop the viewer who consequently becomes suspended within, and propelled around, the depths and contours of this cinematic sphere of consciousness - delving into the most microscopic intensity of form and detail, caressing sweeping curves, colliding with impacted angles and contrasts, surveying the patina of tones, mapping the boundaries of exteriors and interiors, traversing the qualities of configuration and substance. The process is, indeed, proactive in the most profound sense. In this way, a highly tactile bond is formed between the viewer and the screen, and through this bond the sensory reflexes of vision surge.

A crucially significant aspect of the avant-garde film phenomenon is the key characteristic of proactive discrimination in viewing. Central to this proactivity is the fixation upon oscillation, evolution, and alteration, which Laszlo Moholy-Nagy recognised and described as "light-space-time continuity in the synthesis of motion".[30] The viewer is predominantly fixated with the ongoing flow of imagistic mobility and contrast, rather than motionless visual inertia. As certain forms of objects emerge and recede, dilate and contract, rise or fall, calmly sway or violently dart and vibrate, intensify or relax in tone, hue, or structure - so the viewer impulsively senses the imbalancing effects of these processes and thus occupies a constantly renewed perceptual status of oscillating anticipation and reassimilation. Indeed, this fixation with mobility and alteration may explain why viewers of films are quite willing to sit in a cinema for hours, whereas viewers of paintings in a

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[30] Moholy-Nagy, Laszlo, *Painting, Photography, Film*, (1925), trans Janet Seligman. (Massachusetts: MIT Press, 1969), p 21.

gallery generally tend to observe individual works of art for little more than a matter of minutes.

Alteration may not be a component of static visual art works such as paintings, yet even in a time-based medium such as film a sense of perceptual immobility can be generated through graphic or editorial repetition, freeze-frames, or static imagery. Although Dziga Vertov asserted that: "Film work is the art of organising the necessary movements of objects in space," he was also fascinated by the simultaneous possibilities of "inventing movement of objects in space".[31] In their explorations of the perceptual effects of their new spatio-temporal media, early European avant-garde film-makers frequently utilised such procedures which revealed intriguing effects upon the viewer's responsiveness when confronted by perpetually recurring visual stimuli. In such cases of optical perpetuity, including the saturating sensation of a single colour in Oskar Fischinger's *Komposition in Blau* (1935), the initial sensory impact, in this case of the colour itself, gradually recedes as its immediate implications convert to a secondary level of perceptual significance. In this regard, the effect is not dissimilar to that of a constant sound, such as a ticking clock, which may at times disappear completely from the awareness of a person in proximity. To the viewer of Fischinger's *Komposition in Blau*, the sensory impulses will alternate and adjust: occasionally diverting onto a focus with the structuring and restructuring of the shapes within the sequence, or apprehending the flow of temporal rhythms as the film progresses. The saturation of blue progressively diminishes in

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[31] Vertov, Dziga, 'We: Variant of a Manifesto', (1922), in *Kino Eye: The Writings of Dziga Vertov*. Ed Annette Michelson, trans K O'Brien. (Berkeley: University of California Press, 1984), p 8.

chromatic sensory intensity; the viewer's gaze is coerced into seeking out alternate layers of focalisation - deeper strata of phenomenological sensation.

Responses such as these to processes of visual constancy extend into the solely neurobiological diminution in frequency of nerve impulses activated in the visual cortex by any inert optical environment.[32] The responses are a key example of the mind's discerning transcendence of random or unfocused perceptual fixation.

Fascinating as these discerning perceptual attachments to alteration and visual variety may be, there is evidence of related negative implications. For example, there can be a distinct reduction in the degree of consciousness of the nature of the perpetual elements of visual experience. It is a complication which has arisen most significantly in circumstances whereby neurobiological experimentation into visual responsiveness attempts to analyse factors which exist at deeper levels than can be scientifically recorded only in terms of comparative variation and contrast. In his expansive and revelatory exploration of the neuroscience of sight, *A Vision of the Brain*, Semir Zeki states:

> There is a common thread that runs through the history of cerebral studies, from its earliest days to the present time. That thread may be broadly, but accurately, defined as the thread of functional subdivisions. The history of cerebral physiology can then be summarised as having consisted largely of an attempt to chart histologically distinct parts of the cerebral cortex and to assign specific functions to each.[33]

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[32] Zeki, Semir, *A Vision of the Brain.* (Oxford: Blackwell, 1993), pp 137-138. I am indebted to Professor Zeki for his views on the relationships of aesthetics and neurobiology delivered in his lecture *Art and the Visual Brain* at the Fruitmarket Gallery, Edinburgh, 25 March 1997.

Zeki, regarded as one of the leading researchers into the visual cortex and the discoverer of those sections of the brain concerned with the detection of colour and motion, makes frequent reference in the course of his detailed experimental findings to the fact that the uniformly invariable elements of visual experience are those least assessable, most mysterious. The purely physiological tendencies of vision, therefore, are capable not only of expanding the range of perceptions, but also of placing confining parameters around them.

The avant-garde film viewer is, of course, capable of guiding the lines of attention across and around the screen, and these processes of discerning roaming focalisation are directly responsive to the initiating directional forms, structures, and sequences of the specific film viewed. The discernment of the film-maker in the arrangements of graphic data is resonated within a receptive version of visual discernment on behalf of the individual viewer. Indeed, the very physiological mechanisms of optical apprehension, to which we have referred, display clear characteristics of forms of perceptual 'discernment' or categorical choice. Throughout much of the last two centuries, it was broadly considered to be the case that retinal messages to the brain regarding conceptions of colour disregarded the specific multiple composite chromatic tones, focusing instead only upon a key basic colour signal which forms the basis of all subsequent derivative colour concepts. To date, this general and long standing procedural understanding has been almost entirely validated by extensive neurobiological evidence. The implications of this are that the chromatic physiology of the eye is conducted via a form of essence-based conspectus by which, in relation

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[33] Ibid, p 197.

to the realms of consciousness, colour is thus witnessed as a series of blending amalgamations extracted from key base colours. From this extraordinary - almost abstracted - condensational process, consciousness instantly enables acts of visualisation from an infinite spectrum of chromatic signification. In this regard, it may be claimed that the very neurobiology of sight itself engages a perceptual structure within the visual environment through consciousness. Neurobiologist Semir Zeki further concludes:

> There is no colour unless I see it; I cannot see it unless I am conscious. There is no conscious awareness unless certain neural organisations are intact and functioning normally, and it is a feature of such neural organisations that they possess consciousness . . . At first sight one might consider it more than a mouthful to tackle the problem of colour vision alone, without adding the extra and seemingly insuperable burden of consciousness . . . Given this vast lacuna, does one have to tangle with problems such as consciousness at all? Unfortunately, yes. Colour vision is a system for acquiring knowledge about certain unchanging physical properties of objects, namely their reflectance for lights of different wavelengths. Knowledge cannot be acquired without consciousness. We can therefore now extend our description and say that consciousness and the acquisition of knowledge are features of certain neural organisations concerned with colour vision.[34]

Confronted with the vivid and graphically dynamic configurations of avant-garde film, the viewer becomes engaged in a process of selectivity of focalisation, and of specific guidance of responses to structural visual signals. These dynamic responsive reflex motions of the viewer's lines of sight are processes of choice - selection and rejection - and reside at a perceptually immediate level which overlaps both the involuntary subconscious and the consciously intentional. The viewer rapidly locates and relocates the lines of focalisation in a manner which directly and

correlatively reacts to the film's specific imagistic impulses, allowing the precise zone of optical amplification to be centred inside the point of most intense focus. The intensity of focus is physiologically diminished in direct relation to the extent of deviation from the precise focal vector. It is a direct result of this physiological confinement, due to the biological formation of the human retina, that the viewer is capable of (and required to) focalise upon a specific key visual zone, which therefore gains a heightened and detached perceptual significance. This is a process which is of outstanding relevance to the filmic avant-garde viewing experience, and which demands that the viewer apprehends individually specific components of the overall visual structure in a measured temporal manner - embracing the crucial element of focal form and assimilating its expressive signification in relation to its optical context. This ongoing, or renewing, focal form within the film's sequence is frequently embraced as a result of its salience - whether compositional, tonal, or dynamic - in contrast to the ambient remaining visual environment of the film. In addition, however, this focal form may be a reflection of the specific visually impulsive urges of an individual viewer. Yet in each of these cases the focal optic stimuli is a key tool of expression in the moulding creative vision of the film-maker. In a similar fashion to the painter's or sculptor's visionary awareness of a crucial central component of a composition or structure, the film-maker manipulates the responsive effects of key motifs or graphic impulses which have the potential for significantly more resonant impacts within the temporal and editorial realm of filmic placement. Just as the eye is reflexively pulled toward a point of movement within a static visual field, or toward a light source in darkness, it is the specific focal form or

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[34] Ibid, p 346.

zone which triggers the viewer's response. This response seems almost to be initiated and guided by an externally influential force. We may consider this phenomenon to be at the core of directly expressive visual material's transcendence of knowledge based assimilation. The visual reflex is moulded and directed by the source material of the pure visual entity itself, as opposed to the viewer's own referentially assembled processes of cognisance.

This concept of the dynamically reflexive perceptual effect of a key focal form within the avant-garde film is of such central significance that it certainly deserves specific consideration. The instance of focal form reflex may be explicated as a perceptual transition from confrontation to confluence. The idiosyncrasies of a certain filmic arrangement of visual material saturate the screen frame and thus pervade the perceptual sphere of the viewer's mind. An atypicality of destabilised optical configuration creates a responsive confrontation with the viewer's prior perceptual attunement. Such a confrontation of the pervasive unpredictability of the external on-screen dimension with the coherence of the viewer's internal psychic dimension generates a conflictual resonance which is only contained when the visual reflex enables the contrasting dimensions to enter a form of confluence by reattuning the interior psychic sphere to the exterior screen sphere. It is the 'focal form' within the film which serves as the primary vehicle of this reattunement, located at the perceptual core of the transitory spatio-temporal movement toward confluent visual apprehension.

This represents yet another key component of the peculiarly proactive engagement of the avant-garde film's viewing experience, specifically, that of assimilation. Each aspect of assimilative process necessitates a reconfiguration of the presented qualities of an abstracted film's visual signals. As in the case of selecting impulsive focal forms, the requirement for assimilative reconfiguration is by its nature instinctively basic - merely the oscillation and guided roaming of the focus of attention, without any need for perceptual reconfiguration of the structural formations of the film's visual images in themselves.

The avant-garde films which are analysed in this thesis will provide distinctive examples of these processes of perceptual reconfiguration through their especially vivid forms of visualisation. At this early stage, though, a broad outline of the concept can convey why perceptual reconfiguration in relation to the avant-garde filmic image cannot simplistically be regarded as a point at which linear narrative or objective assimilation and direct visual sensation become mutually exclusive. An exclusivity such as this might initially appear to be the logical direction of any phenomenological theory - yet this would only become fully viable when applicable to absolutely clear and uniform visual contexts. In terms of the avant-garde, filmic *sensation* may appear initially as that which might be described as the immediate absorption of on-screen material. Filmic *interpretation*, on the other hand, is initiated by the procedure, conceptually distinct, of refining and assimilating presented on-screen material with the aim of conforming that material into a logically significatory meaning.

In his *Logical Investigations*, Edmund Husserl explores the distinction between initially hearing a word purely as vocal noise and subsequently hearing it as a structure of verbal significance. Similarly, in the area of vision, he considers the scenario of witnessing a woman, yet this woman is subsequently revealed to be a waxwork model.[35] Interesting as his discussion of these concepts undoubtedly is, they do not entirely illuminate the nature of what is involved in the process of interpreting visual sensation at divergent levels. Surely, in order to witness an object or scenario and apprehend its apparent *signification* it must be necessary to conclusively *interpret* that which has been witnessed. However, as much of avant-garde film illustrates, attempts at *interpretation* of visual sensation do not always equate with *signification*. In this sense, as our earlier example of Walther Ruttmann's work attests, aspects of the objective environment rendered via the vivid eye of the avant-garde film-maker engage the viewer in a phased perceptual passage from logical interpretation into an active fusion of this with the urges of the imaginary realm. Thus, the perceptual passage here involves an oscillation from the level of interpretation to an intensive sensory level which transcends the interpretative. Husserl states:

> Different acts can perceive the same object and yet involve quite different sensations. . . The same sensational contents are . . . 'taken' now in this and now in that manner . . . Interpretation itself can never be reduced to an influx of new sensations; it is an act character, a way of being conscious, of 'mindedness'.[36]

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[35] Husserl, Edmund, *Logical Investigations*. Trans J N Findlay. (London: Routledge, 1973). *Logical Investigations* V § 14, § 27.
[36] Ibid. *Logical Investigations* V, § 14.

The consideration of the concept of specific levels of visual focalisation in avant-garde film similarly highlights a further aspect of broader significance. It indicates the means by which the screen viewer's immediate point of awareness is continually roaming to locate a visual key-point upon the surface of an ever evolving filmic frame which has an idiosyncratic formal/rhythmic arrangement. It is this focal stimulae of imagery rushing through the viewer's field of vision which moulds apprehensibly structured forms within that imagery. Each successive filmic frame generates a visually centripetal zone toward which the viewer's concentrated gaze is reflexively drawn. The act of contrast in this process creates the perceptual pressure with which the viewer becomes responsive to the relationships of the total on-screen mise en scène as well as the totality of the film's overall temporal development. Husserl suggests a correlation between relational procedures of organisation in that which is witnessed visually and the modifications of sensation through which these procedures occur. When visual components are considered in their connections with other components, binding into a cohesive whole, they undergo modifications and differ from the same components when considered individually. Husserl explicates the concept:

> Consider, for example, a line set apart, perhaps on a bare white background, and the same line as part of a figure. In the latter case, it *impinges* on other lines, is *touched*, *cut* by them etc . . These are phenomenological characters that help to determine the impression of the appearance of linearity. The same stretch - the same with respect to its internal content - appears ever different according as it enters into this or that phenomenal context, and, if incorporated in a line or surface qualitatively identical with it, melts indistinguishably into this background, losing its phenomenal separateness and independence.[37]

Husserl's scrutiny utilises the distinction between phenomenal continuity and discontinuity. The distinct cohesiveness of the perception of an object or artefact, whether at a fixed moment or over a temporal expanse, involves the fused continuity of the partial perceptual act with the fact that the perception is founded upon its partial components. Husserl offers further detail:

> In the continuous running on of individual perceptions we continuously perceive the single, selfsame object. Can we now call this continuous perception, since it is built up out of individual perceptions, a perception which is founded on them? It is of course founded on them in the sense in which a whole is founded on its parts, not however in the sense here relevant, according to which a founded act manifests a new act-character, grounded in the act-characters that underlie it . . . In the case before us perception is merely, as it were, extended: it allows parts to be broken off from itself which can function as complete, independent perceptions. But the unification of these perceptions into a continuous perception is not the performance of some peculiar act, through which the consciousness of something new is set up.[38]

A key component of Husserl's phenomenology for a theorisation of avant-garde film, then, involves the capability of viewers to transcend perceptual acts in acknowledging the specific perceptual levels presented by the filmic images themselves. In the case of early graphic abstract films, the corporeal materiality of the shapes, tones, and surfaces, as existing independently of the illusory dimension of film reproduction. These shapes are not produced purely by the perceptual activity of the viewer or the reproductory capacity of the photographic apparatus, but are additionally an affirmation of the medium of the film itself - whether etched onto the celluloid surface or painted onto scrolls. In the majority of modern film theory, depictive objects, portrayed characters, and symbolic events, are the codified

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[37] Ibid. *Logical Investigations* VI, § 9.

constructs of the viewer. The illusory suspension of disbelief is a central factor in this constructed procedure, collective social expectations, encoded significations, and so on, are the communicative vehicles of preference. The cinematic representations do not attain the status of corporeal materiality, or transcendent perceptual vitality, but are treated as existing in direct relation to the established conventions of significatory textual evaluation.

Husserlian phenomenology theorises the *experience* of an image or artefact, not merely in terms of a representational connection between objects or events within the text and social reality, not merely of resemblance or correspondence. For Husserl, it is the connection of networks of experience which form the key foundation of the perceptual act of apprehending an artefact. This is what makes phenomenology a methodological tool of particular incisiveness for the analysis of the profoundly experiential qualities of the early European avant-garde film. Such an experiential interaction between the visual configurations of the filmic frame and the urges of the viewer's responsive requirements and focalisation, introduces an important concept which Husserl describes as *apperception.* This is a mode of apprehension which is distinct from conventional perception but closely involved with it. To apperceive means to pass through a sensory object without reducing them to the focal point of perception, in much the same way that a driver of a car may apperceive an insect which hits the surface of the windscreen and focus on the road ahead whilst still conscious of the smudged screen. Similarly, when listening to music it is possible to attempt to concentrate upon which specific instruments are being used at certain

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[38] Ibid, *Logical Investigations* VI, § 47.

times, or simply experience the music apperceptively, allowing the structures of sound and layers of melody to form the object of attention. Husserl regards the nature of perceptions of creative artefacts as distinctive in the sense that perceivers transcend notions of existential representation to focus more upon how the artefact steers us toward another level of experience.

Regarding the concept of apperception, then, it might seem that without specific focalisation visual awareness may be rendered totally absurd and meaningless. However, total absurdity and randomness of image upon even the avant-garde screen surface is, in the truest sense, a virtual impossibility. Were such a scenario to exist it would be theoretically inconceivable for any form of focalisation to apply. Consider the case of Hans Richter's *Rhythm 21* (1921). In this striking seminal work of early avant-garde film-making, Richter frequently obliterates in-frame differentiation, rendering the full screen uniformly unstructured and achromatic - either totally black or totally white - whereby the viewer can witness nothing upon the screen surface. Yet in these intriguing instances, the viewer's fixation of sight surges across and around the frame impulsively attempting to reconfigure or, in the temporal sphere, anticipate an element of structured formality. Indeed, it is in the time-based construction of the film, its undulating layered temporal shape, that a type of formal focalisation emerges from these moments of filmic blackout or whiteout. Writing in his key text, *The Cubist Cinema*, Standish Lawder eloquently unveils the perceptual implications of the work:

> Richter's first film, *Rhythm 21*, was a kinetic composition of rectangular forms of black, grey, and white. Perhaps more than in any

> other avant-garde film, it uses the movie screen as a direct substitute for the painter's canvas, as a framed rectangular surface on which a kinetic organisation of purely plastic forms was composed. For, normally, the movie screen is perceived as a kind of window, more or less arbitrarily circumscribed, and behind which an illusion of space appears; in *Rhythm 21*, by contrast, it is a planar surface activated by the forms upon it. Thus, its forms, like those of an abstract painting, seem to have no physical extension except on the screen, nor do we sense their lateral extension beyond the limits of the screen as is usually the case in images created by camera vision . . . In the opening passages, the screen is divided into large dynamically interacting areas of black and white. Thus, a black screen is closed over by two white rectangles sliding in from either side, a white screen splits in the middle to reveal a black background, a white square in the centre of a black void advances and recedes, expanding and diminishing in size. By eliminating image content and greatly simplifying pictorial composition, Richter created a work of pure visual rhythm in which these large areas of light and dark fill the screen . . . One of the surprising elements . . . is the complex spatial illusionism that derives from the dynamic interplay of contrasting areas of black and white . . . At any given moment, these spatial relationships are purposefully ambiguous and constantly changing . . . Thus, in his first film, Richter created a work in which the content was essentially rhythm, the formal vocabulary was elemental geometry, the structural principle was the counterpoint of contrasting opposites, and in which space and time became interdependent.[39]

The preceding examples have endeavoured to demonstrate the nature of the urges, and instances, of visual selectivity and levels of focalisation as key concepts underpinning the phenomenological qualities of avant-garde film. Additionally, these qualities are indicative of an active viewing process of direct perception. As this direct screen sense is attuned to a focal zone, a perceptual purpose, or imperative, is drawn forth from the full visual scope of the film frame. However, rather than constrict the sensory impact of the avant-garde configuration, it heightens the vibrancy of viewing experience by rendering apprehensible the surges of complex visual data. Thus, the abstracted filmic image actually urges and invokes

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[39] Lawder, Standish D, *The Cubist Cinema.* (New York: New York University Press, 1974), pp 49-52.

the progressive perceptual procedure of intensifying the bond of the mind's eye with the vital formal details unravelling upon the screen surface.

The concept of focalisation is also active within the area of screen spatiality. Whilst perceiving and interpreting avant-garde configurations of visual depth and space, only specified key zones of screen data are sharply focalised through particular instances. Where a key focal form may be prominent, its surrounding visual context may be rendered recessive. Indeed, a similar process may apply conversely. The focalisation process in this sense, and as another level of active viewing, operates through the film-maker's creative manipulation of the viewer's lines of concentration by alternately thrusting forward, and holding back, the focal intensity of certain areas of the overall on-screen structure. In this way the avant-garde film is capable of enhancing another aspect of phenomenological experience by lending visual fidelity to the viewer's flow of attention across various spatial zones of the screen surface.

The more restricted the size of these focal spatial zones, the greater their surrounding visual context will project. By the same token, as the focal zone enlarges, so the contextual imagery will recede. The interaction between these varying processes of direct and active visual decisions, on behalf of the viewer, is spontaneously enmeshed with the perceptual influences of the film, as created by the film-maker. Indeed, both the film-maker and the film viewer are engaged in the responsive choices of deciding upon: the extent of *essential* focal material on-screen; the range of focal attention across the screen surface which is required to apprehend the film's overall compositional and temporal qualities; and the quality of latent contextual

imagery which is required for the comprehension of the film's key points of expression. In this regard, a further aspect of the avant-garde's significatory effects at the phenomenological level emerges. Confronted with the images of the screen's presentation, the avant-garde film viewer may be profoundly perceptually affected purely by the relationships of scale and centrality of space between various components of the imagery. Thus, within the question of spatiality the viewer might well be capable of locating answers to the avant-garde film-maker's abstracted creative vision.

Although cinematic imagery projected upon the screen is a technical reproduction of the objects the film-maker captured with the camera, etched upon the celluloid, or drew upon a scroll, the sensory responses of the avant-garde screen viewer are by no means reproductive. Responses to abstract film shapes, as a prime example, represent the processes of apprehending key structure characteristics located within, or impressed upon by the viewer, screened visual formations. In many instances of early abstract film, configurations of shape contort or manipulate the viewer's existing perceptual grasp of shape experience. For example, although Hans Richter's *Rhythm 21* may appear to be an exploration of the square, it is not a mathematical explanation of this shape or its literal embodiment. Richter himself, whilst elucidating the importance of the basic shape principle of the film, states:

> I used the square as the simple way of dividing the square film screen . . . The simple square gave me the opportunity to . . . concentrate on the orchestration of movement and time.[40]

Though *Rhythm 21* intensely concentrated upon the square and the concept of squareness - stretching, magnifying, penetrating, and traversing the form - it is the viewer's response which is here of crucial significance. For the viewer is concurrently aware of the subversions of the shape as presented by Richter, and aware of the generic set of experiential pre-existing understandings, or essences, of the square as a key shape concept. The sensory experience of viewing *Rhythm 21* is the activation of a process in which Richter's filmic shape data collides and entangles with the viewer's generic shape experience. Thus, a form of accommodation occurs as the viewer correlates or aligns the presentation of screen shape with their framework or armature of perceptual shape. This established armature of perceptual shape understanding may alter and adjust in order to absorb the specific idiosyncrasies of on-screen shape stimuli. For example, Walther Ruttmann's fascinating early work *Lichtspiel Opus 1* (1919-21) features an array of perpetually transfiguring triangular and circular based shape formations. In this case, a more diverse configuration of shape stimuli is projected, yet the viewer will perceptually adjust their levels of shape awareness to accommodate the most basic armature of understanding: in this instance that of the triangle and the circle as distinctly salient contrasting elements. The key point is that the sensations emitted by the abstract film at the level of shape may only be fully apprehended through the depth at which they penetrate the viewer's structured framework of shape perception.

A concomitant characteristic of many of those avant-garde works which display shape as a central expressive component, is the complexity of formal congestion and

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[40] Russett, Robert and Starr, Cecile, *Experimental Animation: Origins of a New* Art. (New York: Da Capo Press, 1976), p 49.

obstruction. This occurs as a matter of particular interest in many of the graphic film works by Hans Richter, as well as Oskar Fischinger, although it should be noted that the process is also evident in several live-action avant-garde films which feature subverted objective representations. An intriguing sensory phenomena is activated by the creative aesthetic layering of forms, obstruction and allusion, which is temporally as well as plastically manipulated to considerable effect. As a defined shape or object is obstructed from vision, partially represented, or concealed by other forms, the viewer is perpetually induced into projecting potentially conclusive or apposite imagery. In Hans Richter's *Rhythm 23* (1923-4), rectilinear shapes appear and are overlapped, and obstructed by a continuously regenerating series of contrasting forms. The viewer perceives these overlapped rectangles as partially obscured whole shapes. The implication of this viewing phenomenon is that the sensory responses of the viewer are not totally confined to the *explicitly* on-screen imagery but activate a range of *implicit* projections, or supplementations, as valid components of the actual images upon the screen. A related, but slightly different, process takes place in the example of Fernand Léger's *Ballet Mécanique* (1924). In this striking film, Léger utilises live-action footage of mechanised, metallic objects in dynamic motion magnified and intensified to an extent which detaches them from the state of objective representation and thrusts them into an aesthetic sphere of pure expressive sensation. Frequently the camera eye fixations upon these hallucinatory, hypnotic mechanisations are perceived by the viewer as an intensified and penetrative aesthetic phenomena which transcends the restriction of objective presentation, supersedes the narrow-gaze fracturing of the mechanical component from its utilitarian broader purpose. The crucial point in this transcendent sensory

occurrence is that once again elements excluded from actual visible presentation upon the screen, elements outwith the film frame, are perceptually projected or amplified so as to catalyse a total aesthetic sensory experience. In Standish Lawder's detailed analytic dissection of *Ballet Mécanique,* he argues that certain sections of the film:

> . . . are experienced as distinctly *external.* . . . To use the critical vocabulary of Etienne Souriau, we experience the presence of an 'image écranique' rather than an 'image profilmic'. Their extra-referential meaning as 'realistic images' was reduced, their significance as pure patterns of two-dimensional movement correspondingly intensified.[41]

The significant phenomenological achievement implicated in these viewing experiences resides within the transcendence of the presentational parameters of the film frame, and its physically evident objects, by reabsorbing them as visionary components of a more expansive and penetrative screen sensibility.

It is a frequent occurrence within the circumstances of viewing many early avant-garde films that the eye is confronted by a visual crescendo of several simultaneously evolving image elements. In these instances, the film frame is congested with an abundance of vibrantly dynamic formal structures which defy conventional interpretative delineation. Thus, an observer may be particularly aware of the presence of processes by which a pure visionary sensation, or screen sense, is activated and probes presented visual material with an optimised intensity.

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[41] Lawder, Standish D, *The Cubist Cinema*, pp 148-9.

Husserl applies the term 'intentionality' to describe the way in which the perceptual act *extends* to apprehend its specific subject. Intentionality in this sense, derives from the Latin term *intentio*, meaning extending towards a certain point. The content of the avant-garde film is *intended* as the object of the perceptual process of apprehending the visual data upon the screen surface. In Husserl's terms, such a process of perceptually extending, of intentionality, involves the active interface of visual appearances and the recipient's particular mode of locating an awareness of perceptual responsiveness. In order to develop awareness of the core characteristics of perceptual experience, Husserl uses the idea of reduction. This involves moving attention away from the objects of perception, and toward the perceptual act itself in order to reveal the structural components which mediate intentionality. In this case, the objects of perceptual acts exist beyond the perceptual act itself, they are part of a perceptual transcendence. The perception itself may be defined as a phenomenon which, through reduction, permits both an awareness of subject and object simultaneously. In apprehending the shapes in Richter's *Rhythm 21*, the viewer's awareness shifts away from the idea of film as a reproduction of staged representative events, to focus upon the processes of perception themselves necessary to the apprehension of the rhythmic imagery. A reduction, or bracketing, takes place to detach the film from the conventions of recognised representation, in order to reveal the sensory nature of the processes of perception. Husserl asserts that the use of reduction allows the perceiver to transcend the objects of appearance, whilst acknowledging their presence to form an awareness of the essential nature of perception itself. Husserl additionally, and usefully, notes that non-veridical experiences also apply in perceptual awareness:

> In certain cases it may be that the perception is a 'mere hallucination'; and that the perceived . . . does not exist in the 'real' objective world . . . nothing remains but the perception; there is nothing real out there to which it relates.[42]

Husserl here makes it clear that even in hallucinatory or imaginary experience, the perceptual process still factually exists. Again, with the use of reduction, attention is concentrated upon perceptual process itself, as distinct from the implicit bond with autonomously existing presentative objects. With this detached effect of reduction, Husserl continues to state that:

> A relation between perception and perceived (as likewise between the pleasure and that which pleases) is obviously left over, a relationship which in its essential nature comes before us in 'pure immanence', purely that is on the ground of the phenomenologically reduced experience of perception and pleasure.[43]

Through reduction, then, it becomes possible to reveal the relationships of subject and object within perceptual procedures, and also to identify the specific nature of the overall act of apprehension. This, in fact, involved the implicit co-determination of presentative appearances, such as the appearances of squares in *Rhythm 21*. Phenomenologically speaking, there is a transcendental apperception of the representative appearances of the squares which exposes the rhythmic sensory awareness of the forms. In addition to reduction, Husserl also applies the concept of what he calls 'horizons' which are also valuable for our examination of the early avant-garde film. Husserl describes how the act of perceiving an object presupposes

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[42] Husserl, Edmund, Ideas: *General Introduction to Pure Phenomenology*. Trans W R Boyce Gibson. (New York: Collier, 1962), § 88.
[43] Ibid, § 88.

certain important features of the viewer's structural system of background beliefs about key characteristics of the object. He states:

> Every subjective process has a process 'horizon', which changes with the alteration of the nexus of consciousness to which the process belongs and with the alteration of the process itself from phase to phase of its flow - an intentional *horizon of reference* to potentialities of consciousness that belong to the process itself . . . Moreover, . . . to every perception there always belongs a horizon of the past, as a potentiality of awakenable recollections; and to every recollection there belongs, as a horizon, the continuous intervening intentionality of possible recollections, up to the actual Now of perception. . . . The horizons are 'predelineated' potentialities . . . The predelineation itself, to be sure, is at all times imperfect; yet, with its *indeterminateness*, it has a *determinate structure*.[44]

The act of viewing Richter's *Rhythm 21* therefore, to return to our example, presupposes the viewer's system of structural background beliefs about squares. These beliefs play an important part in the predelineation of a perceptual horizon. The perception of the evolving and oscillating squares in *Rhythm 21* is constantly changing, never complete, or 'indeterminate' in Husserlian terms. When the viewer experiences the shapes and forms of *Rhythm 21*, the Husserlian insight is that the full concept of 'squareness' becomes the very object of perception even though the shapes themselves are fragmentary, elusive, and perpetually altering. Here lies Husserl's key contribution to epistemological theory. Perception of objects upon, or outwith, the film screen surface cannot instantly engage everything about those objects; yet these objects themselves with all of their properties, such as Richter's oscillating squares, are what the viewer perceives. Viewing *Rhythm 21* involves a necessary sense of incompleteness. The squares evade full dimensional definition, contained as

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[44] Husserl, Edmund, *Cartesian Meditations: An Introduction to Phenomenology*. Trans D Cairns. (Dordrecht: Kluwer, 1993), pp 44-45

they are upon the screen surface, restrained by the medium of their presentation. Yet despite the awareness of these limitations imposed by the medium, the viewer engages in a full perceptual involvement with the essence of these rectilinear forms and the specifics of their features. Husserlian phenomenology informs us that perceptual horizons influence and modify the realisation of the *objects* of perception, such as the squares in *Rhythm 21*, and contribute to the co-determination of the imagery which is affected by previously acquired experiences. Husserl further asserts:

> The object is present from the very first with a character of familiarity; it is already apprehended as an object of a type more or less vaguely determined and already, in some way, known. In this way the direction of the expectations of what closer inspection will reveal in the way of properties is predelineated.[45]

Although *Rhythm 21* presents a fragmentary array of ever changing forms and shapes, the viewer engages with the film endowed with a set of experiences and understandings of shape and form stemming from prior knowledge. As Husserl has suggested, expectations held about the status of objects are 'predelineated'. Perceptual horizons influence and guide responses to the on-screen objects, and the viewer experiences a shape sensation despite the fact that there is a limitation imposed by the medium. In this sense, the shapes of *Rhythm 21* are perceptually *revealed* rather than culturally *constructed.* In these terms Husserl says:

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[45] Husserl, Edmund, *Experience and Judgement: Investigations in a Genealogy of Logic.* Trans J S Churchill and K Ameriks. (Evanston: Northwestern University Press, 1973), § 24.

> No apprehension is merely momentary and ephemeral . . . the object is pregiven with a new content of sense, it is present to consciousness with the horizon . . . of acquired cognitions.[46]

In experiencing a film such as *Rhythm 21*, the viewer's perception of shape is not simply ephemeral but is expanded and enhanced by innate structural systems of awareness. Perception is thus linked to a range of horizons of potential perceptual capabilities. In the perception of early avant-garde film, sensory processes frequently extend beyond conventional parameters toward other possible perceptions which experience the objects of visualisation more intensely. For the early avant-garde film-makers, not only were they delving into a whole new medium of expressive and perceptual possibilities, but they were selecting locations upon celluloid for a range of relevant aesthetic challenges posed for the visual arts at the opening of the twentieth century.

Indeed, the artistic directions embarked upon by early avant-garde film were as diverse as they were complex, and are truly remarkable for their enduring purity of invention and revelation. In much the same way as the pioneering avant-garde film-makers created these qualities, so for the contemporary viewer of their works the viewing experience itself remains a revelatory one. Viewing the early avant-garde film demands an active process of orientation toward key imagistic impulsive signals, exploration of nuances, acclimatisation to subversive structure and temporal relativity among other things. When the importance of understanding the distinctive nature of the viewing process itself becomes clear - of seeing sight and thinking of

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[46] Ibid, § 25.

thought - the avant-garde film can be seen to attain its appropriate expressive and perceptual status, revealing the vibrancy of the sensory screen to the viewer.

Perhaps more profoundly than any other single area of cinematic expression, the perceptually challenging confrontation of early avant-garde film unveils the high level of viewer interaction, sensory engagement, and image generation involved in what is often oversimplistically referred to as 'watching a film'. The visionary assault on the senses when enveloped by dynamic, oscillating surges of complex imagery is a key characteristic of the avant-garde film experience, and therein resides the possible route to a deeper understanding and appreciation of the idiosyncrasies of such works. It is a route along which some of the most potent and intense illustrations of directly responsive screen sensation may be encountered.

II. INTUITIVE ILLUMINATIONS: LIGHT

Cinematography is the precise term for motion picture photography. The etymology of the term 'photography' derives from the Greek 'phót' meaning light and 'graphien' meaning to write. Photography, then, is literally 'light-writing'. Light is an element of primary significance to the early avant-garde filmic medium at a variety of levels. In purely technical terms, film cannot exist without light. Indeed, the vitality of the role of light can be clearly comprehended in a brief delineation of the technical processes of film development. Within the film-maker's camera, light reaching the photosensitive emulsion containing silver halide crystals forms a latent image which can be made visible by chemical development. By exposing another photosensitive material to light passing through this negative, a print can be made which yields a positive image presenting the original scene. The early avant-garde film-makers, many of whom were originally painters, were acutely aware of the concepts of expression intrinsic to medium. Just as the malleability and fluidity of paint had obtained an aesthetic status for its own sake in their works on canvas, so too did the technical nuances of celluloid attain a foregrounded position as an explicit surface for self-referentiality of medium and creative coercion. Indeed, in 1925, Germaine Dulac wrote: "For cinema, which is moving, changing, inter-related light, nothing but light, genuine and restless light can be its true setting."[1]

Light, however, beyond its essential role in the purely technical terms of film, is heavily loaded with expressive powers of symbolic, perceptual, and psychological

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[1] Dulac, Germaine, 'The Essence of Cinema: The Visual Idea', in *The Avant-Garde Film: A Reader of Theory and Criticism*, ed P Adams Sitney. (New York: New York University Press, 1978), p 39.

phenomena. These are the powers which this chapter seeks to analyse. They will be analysed with the specific objective of elucidating the nature of their functions within key examples of early European avant-garde filmic imagery. It is important in this process to initially address the structure of concepts involved in the avant-garde visual perception of light, the psychological implications of these concepts, and to integrate these with phenomenological aspects arising within textual analyses of the uses and effects of light in relevant case studies of early avant-garde works. By this process, therefore, it may be possible, to begin to illuminate the idiosyncratic impacts of avant-gardist forms of filmic illumination and why, as Louis Delluc wrote: "Light, above everything else, is the question at issue."[2]

In order to absorb visual expressivity, it is necessary to have the power of vision. In order to have the power of vision, it is necessary to have light. In the light of contemporary knowledge, this seems to be stating the profoundly obvious. It is fascinating, however, to discover and trace the historical development of human understanding of the significance of light in the processes of visual perception. It is currently well known that vision is made possible as a result of light entering the eye. In complete contrast, Plato believed that vision was the result of strange particles which were transmitted or projected outwardly from the eyes and enveloped everything within the range of vision. There is a very lengthy history of contrasting historical perspectives upon the nature of visual perception. Physiological perspectives and analyses of vision, however, have a very much briefer history. Indeed, the relative infancy of the scientific understanding of vision seems

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[2] Delluc, Louis, quoted in Jacques Brunis, 'The Experimental Film in France', in *Experiment in the Film*, ed Roger Manvell. (London: Grey Walls Press, 1949), p 70.

particularly peculiar given that virtually all scientific observation and data is reliant upon the senses - perhaps most of all upon the sense of sight.

Over the last four centuries there have been two key contrasting theories upon the properties and characteristics of light. Christian Huygens (1629-1693), the Dutch physicist and astronomer, propounded a concept of optics known as the wave theory of light, in which he asserted that light must consist of pulses propelled through an all pervasive medium, which he described as the 'aether', composed of tiny pneumatic spheres compressed together. He claimed that any alteration or vibration would reverberate in a multi-directional manner throughout the compressed spheres in the form of a wave. This wave, in Huygens' theory, was light.

The English physicist and mathematician Isaac Newton (1642-1727), by contrast, claimed that light consists of a flow of particles which he described as 'corpuscles'. It is significant to note, though, that Newton was indeed aware of the complex nuances of the subject of light, and conceded the possibility of a combination of particles and waves. Such a concept of the combination of particles and waves has, in fact, become the established modern theory of light. This modern theory describes light as particles whose behaviour is governed by wave principles.

Powerful perceptual capabilities are conferred upon living organisms through a sensitivity to the form of chemical energy which is light. This energy can convey essential sensory data about the immediate, and more distant, environment. Virtually all living organisms are responsive to light. For example, plants absorb the energy of

light, petals gape wide and stems stretch and contort in order to reach as much sunlight as possible. Human beings are responsive to light in a variety of ways, and to varying extents. Psychologically, it has been proved that people respond very distinctively to the level of light they are exposed to. Seasonal affective disorder, for example, is a recurrent alteration of mood occurring at a certain time of year. Patterns of repeated depressions correspond with the darkness of the winter months, and have been shown to respond favourably to treatment with bright light.

Beyond the purely scientific terminology of the nature of light, however, is the manner in which light is propagated and perceived in the natural environment. Indeed, Edmund Husserl's phenomenology has assessed the nature and conditions of scientific knowledge. In exploring 'evidence and the idea of a genuine science', he asserts that:

> . . . . the Cartesian idea of a science (ultimately an all embracing science) grounded on an absolute foundation, and absolutely justified, is none other than the idea that constantly furnishes guidance in all sciences and in their striving toward universality - whatever may be the situation with respect to a de facto actualisation of that idea. Evidence is, in an *extremely broad sense*, an *'experiencing'* of something that is, and is thus; it is precisely a mental seeing of something itself. Conflict with what evidence shows, with what 'experience' shows, yields the negative of evidence (or negative evidence) - put in the form of a judgement: positive evidence of the affair's non-being. In other words, negative evidence has as its content evident falsity. . . . Though de facto, as science itself must ultimately see, it does not attain actualisation of a system of absolute truths, but rather is obliged to modify its 'truths' again and again, it nevertheless follows the idea of absolute or scientifically genuine truth; and accordingly it reconciles itself to an infinite horizon of approximations, tending toward that idea.[3]

In this sense of 'experiencing', light can be regarded as a construction of rays which are of a diverse variety of intensities. These rays emanate from light sources and would, without obstruction, travel in directly straight lines. In the conventional natural environment, however, these light rays are subject to very much more complicated projections.

Integral to processes of the transmission of light through space, is the concept of the informative content of light in relation to the visual environment. Light is filled with expressive information which is structured by the qualities and positions of the objects and surfaces which have affected it, and which it in turn affects. The variety of intensities and compositions of light is in accordance with the variety of surfaces and objects with which it interacts. This variety of intensity and composition can be described as an 'optic array', a term most significantly developed in the work of the innovatory American psychologist James J Gibson (1904-1979).[4]

Important visually expressive information can be conveyed through the relative degrees of spatial structure in the optic array of light. Patterns of light intensity will always be diverse and irregular unless reflected from a smooth and uniform surface; rays of light in an optic array reflected from an unevenly textured surface vary in intensity throughout various areas of the array. In short, there will be a specific structure in the optic array which will be representative of the nature of the surfaces reflecting the light. Clearly, therefore, the optic array communicates vital

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[3] Husserl, Edmund, *Cartesian Mediations: An Introduction to Phenomenology.* (Dordrecht: Kluwer, 1993), pp 11-12.

[4] Gibson James J, *The Senses Considered as Perceptual Systems.* (Boston: Houghton Mifflin, 1966) and *The Perception of the Visual World.* (Boston: Houston Mifflin, 1950).

information about detailed qualities and characteristics of the visual environment and the expressivity of objects therein.

The preceding details about the characteristics of light have focused in particular upon the information conveyed through the optic array in static terms. Many early avant-garde motion pictures, however, most distinctively involve processes of alteration of the spatial structure of optic array through movement. This results in the fluctuation of spatial structures and light patterns. Movements of objects in the visual environment will change the areas of division between sections of the optic array relative to each other. This can be described as a spatio-temporal structure in the optic array, and can itself convey additional expressive information about such things as the nature of velocity, direction and formation of relevant movements. Indeed, visual perception researcher Gunnar Johansson has stated that: "The eye is basically an instrument for analysing changes in light flux over time".[5]

These principles of the optic array are applicable to all visual environments and all of their specific forms and sources of illumination. The essential point, which it is now possible to clearly and firmly assert, is this: patterns of light, both spatial and temporal, communicate crucially expressive data about the structure of a visual environment, its objects and occurrences.

The perceptual processes of light are very closely connected with the ability of the mind to register the nature of relationship, rather than of merely individual elements.

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[5] Johansson, Gunnar, 'Visual Motion Perception', *Scientific American* 232 no 6 (1975), p 76.

This psychological affinity with the concepts of relationship allows the human mind to formulate an understanding of surroundings and of imagery. Perceptual responses are generated by graduations of light, and the relationship of these graduations, as opposed to the level of light reflected uniformly from a single object. The retina of the eye receives a myriad of points of light which stimulate the light sensitive rods and cones which transmit information to the brain. Focus upon an object and scan its shape and structure. The image of the object is projected upon the retina as a pattern of various graduations of light; light of various wavelengths and intensities. The structure of the object, and the perception of its structure, is determined by the interaction of each of these different intensities of light and their combined meaning as a whole.

This interactive process of the perception of a range of light intensities is such a frequent and conventional occurrence that it becomes almost subconscious. The objective level of the significance of the interaction of various intensities of light has been clarified in psychology with the use of what is known as a 'reduction screen'. This screen is a type of small peephole which only allows the visibility of a minute expanse of light upon a surface, obstructing and excluding all surrounding relationships of graduated light. The small, single quantity of visible light loses any communicative significance in its detachment from related light levels. The concept of relationship, then, is of key significance to light, and its subsequent expression of meaning.

Relationship is, in itself, a concept which extends into the area of visual interpretation; in this case, the relationship of the expressive qualities and meanings of light and its beholder. This question of relationship introduces the theory known as synaesthesia. The condition of synaesthesia involves the association of sensory experience of one modality with the stimulation of another modality. Such cross-modality experiences are very common and, up to a certain extent, perfectly normal. These may involve, for example, the way in which low musical notes generate a sharp sensation; horizontal shapes and angles generate a sense of relaxation whilst vertical shapes and angles generate a sense of tension; and the colour blue feels cold whilst red feels hot. This phenomenon in relation to colour is more precisely known as 'chromaesthesia' and will be considered in the next chapter.

In *Phenomenology of Perception*, Maurice Merleau-Ponty assesses the status of synaesthetic experience within the contrasting contexts of the sensory and the objective:

> Seen in the perspective of the objective world, with its opaque qualities, and the objective body with its separate organs, the phenomenon of synaesthetic experience is paradoxical. The attempt is therefore made to explain it independently of the concept of sensation: it is thought necessary, for example, to suppose that the excitations ordinarily restricted to one region of the brain - the optical or auditory zone - become capable of playing a part outside these limits, and that in this way a specific quality is associated with a non-specific one. Whether or not this explanation is supported by arguments drawn from brain psychology, this explanation does not account for synaesthetic experience, which thus becomes one more occasion for questioning the concept of sensation and objective thought . . . Synaesthetic perception is the rule, and we are unaware of it only because scientific knowledge shifts the centre of gravity of experience, so that we have unlearned how to see, hear, and generally speaking, feel, in order to deduce, from our bodily organisation and

> the world as the physicist conceives it, what we are to see, hear and feel.[6]

Synaesthetic effects, then, are very strongly involved in the processes of the interpretation of light qualities. Light levels are frequently interpreted as a concept existing within a structured formation in which contrast and duality are of key significance. These interpretations are closely connected with the symbolic meanings operative in light. For example, consider these common symbolic oppositions of light and dark: day/night; hot/cold; clarity/mystery; safety/danger; action/inaction; good/evil. Indeed, it may be possible to extend such synaesthetic symbolisms into even more subjective dualities, such as: happiness/sadness, or strength/weakness. The relationships of subjective concepts with objective oppositional adjectives has been explored in particular detail by Professor Charles E Osgood.[7]

However, it is important to bear in mind the processes of tradition and convention through which such symbolic attachments have evolved in western culture. In this respect, light is capable of expressing 'meanings' rather than simply 'meaning'. In other words, the expressive effects of light are not necessarily fixed. In certain circumstances it may be possible to symbolise darkness as the positive element in the equation. For example, darkness as a symbol of sanctuary or sensuality; light as a symbol of lurid harshness or intrusive exposure.

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[6] Merleau-Ponty, Maurice, *Phenomenology of Perception.* Trans C Smith. (London: Routledge, 1962), pp 228-229.

[7] Osgood, Charles E, *The Measurement of Meaning.* (Springfield: University of Illinois Press, 1957).

The diverse use of light in artistic expression serves as a valuable illustration in this regard. The English painter and poet William Blake (1757-1827), one of the great artists of the Romantic period, idiosyncratically expressed his intense visionary symbolism with light in many of his paintings. In *Glad Day* (c 1794, London, British Museum), Blake presents the potent symbolic nature of light as an expression of life, vitality, and vivid clarity. The sharp, bright areas of the painting spread in a multi-directional surge, almost entirely excluding the murky, amorphous expanses of darkness recessed toward the lower area of the work. In this case, Blake is clearly objectifying light as an expression of health, joy, and goodness; whilst darkness is a sinister, almost evil element which must be evaded or obscured. Description of the imagery of such a work as this, serves to uphold the most obvious metaphorically expressive relations upon which light qualities are most frequently established.

In complete contrast, however, is the work of James McNeill Whistler (1834-1903), the American painter who worked principally in England. In the particular case of his numerous nocturnal scenes, such as *Chelsea: Nocturne in Blue and Green* (c 1870, London, Tate), Whistler presents dark and shadowy tones as a fantastically alluring image of entrancing, undulating beauty. His nocturnal works are celebrations of what he saw as the awesome, majestically uplifting expressive qualities of darkness.

The painterly points of reference relating to light were very much a part of the aesthetic sensibilities of many of the early avant-garde film-makers, themselves originally painters. Indeed, the paintings of such luminaries of the filmic avant-garde

are frequently underestimated, if not ignored, yet their significance in understanding the creative impulses of their subsequent film work is considerable. Hans Richter's powerful paintings in oil, for instance, executed in the years immediately preceding his earliest film work, display a vivid and angularly expressive deployment of lighting effects. *Revolution* (1914, oil on board, Berlinische Galerie, Berlin), derives its considerable dynamic vitality from a swirling evocation of jagged flashes of light - surging and sweeping from a variety of sources, alternately illuminating architectural surfaces, figurative clusters, and perspectival configurations of line and shape. This work is a particularly interesting example of the ominous intensity which Richter was capable of generating through an overarching visual atmosphere of pervasive darkness and intimidating depth of grasping shadow. Here we can see both the historical influences operative in Richter's sophisticated visionary sensibility, and a forewarning of the idiosyncratic directions his work in other media would steer him. Certainly, his paintings clearly display the expressive powers of light derived from Renaissance chiaroscuro, yet laden with the fragmentary and visceral subversiveness of imagery essential to modernism. To the lower right-hand area of the painting, a congested accumulation of sharply angled zones of light generate a broader perceptual effect of composition. This thrusts the viewer's gaze upward across the picture field in an asymmetrical movement toward an increasingly disruptive perspectival regime enforced by intensifying fragmentation and recession of tonal form. It is the application of specific surfaces of light to this image which forms the armature of compositional rigidity, spatial sensation, and linear directionality.

The crucial importance of the handling of light in Richter's works in paint is further in evidence in *Cello* (1914, oil on board, Aargauer Kunsthaus, Aarau). In this instance, Richter extends his concern with the nature of light as a force crucial to structure and composition. This poised figurative study, the focal form of which is the curved sculptural contouring of the cello itself, is rendered extraordinary in its dynamic dissection of the picture surface with a series of colliding, overlapping, and interacting planes of pure light. It is with a very powerfully defined channelling of light sources that this image is actuated, with light itself becoming a central object of the image. Light, therefore, as both subject *and* object, influence *and* image, is clearly an element with which Richter has a particular preoccupation - a preoccupation which would propel further elemental visual instincts in the medium of film.

Richter's painterly foregrounding of the significance of light itself leads to perhaps even greater levels of intrigue, and perceptual import, in the realm of film. The screen viewer's focused concentration tends to predominantly attach to objective characters, events, actions, and components of the environment themselves, whilst the role of light is rarely allotted its due regard. Having the primary focus of attention lodged upon faces, bodies, landscapes, vehicles, interiors and exteriors, eclipses the essential importance of the cinematic life force, the oxygen of film: illumination. It is perhaps understandable, therefore, that the majority of the twentieth century's film production has emphasised content over context, message over medium. However, in so doing, a crucial aspect of expressive potential has been denied full vigour. Such potential has, however, been noted and developed in

the avant-garde film, in which cinematic illumination and the pure medium of light's perceptual impact pervades the screen as a key proactive component of expression. Indeed, in the early avant-garde cinema it is possible to locate some of the modern era's most potent creative demonstrations of the sole, and substantive, power of light itself as an autonomous perceptual phenomena.

This power emerges with particular force in the pioneering early film-works of Walther Ruttmann. His seminal importance is clarified by Walter Schobert, who states:

> It can no longer be doubted that Ruttmann was the first artist to put the idea of an abstract film into practice. Many people had the idea, but nobody before Ruttmann had implemented it . . . Walther Ruttmann was the first to complete an abstract film. He first showed *Lichtspiel Opus 1* in Frankfurt at the beginning of April 1921, and the official premiere took place in Berlin on April 27.[8]

Lichtspiel Opus 1, then, is clearly a work of crucial historical significance, and its emphasis upon the pure expressive impact of light is profoundly prominent. Indeed, in an evocative description of the film's premiere in Berlin, Herman G Scheffauer emphasises its powerfully luminescent experience:

> The room faded away. Darkness. A few moments' impressive pause, as though to wash away the last clinging contacts with the external world. The machine began to purr, letters and titles flickered for a moment phosphorescently. Then - the opening notes of the symphony - iridescent atmospheres surcharged with an intense and vibrant light, burned and dissolved upon the screen. These served as backgrounds, melting and flowing into one another - dawnlight and sunburst and twilight, infinite reaches of space, and the carolling blue of morning

[8] Schobert, Walter, *The German Avant-Garde Film of the 1920s*. (Munich: Goethe-Institut, 1989), p 10.

> or the dark saturated stillness of the night sky with a grey *terror vacui*. The separate notes and cadences of the symphony darted and floated into these luminous fields, . . . fountains and jets of light and shadow shot into infinity.[9]

As Scheffauer's account atmospherically suggests, this is certainly a film which potently engages with the sensory implications of pure light. *Lichtspiel Opus 1* opens with a pitch black screen frame which is then suddenly pervaded by a bulging globe of white light rising from the lower left area of the frame. Swelling repeatedly into the black screen, this light form surges organically and rhythmically as a disembodied glow. This formation of white light quickly changes into a bright blue hue and gains a steadier, more spherical structural form, which fills the centre of the screen. Despite its changing colour, the form retains a distinctive identity as a specific source of pure light which clashes and contends with the intense black darkness of the background. Indeed, this black backing appears more as an element of pervasive darkness which does not spatially recede, but relentlessly grasps the screen surface. The swelling spherical light form is then intermittently interrupted by a series of flashing transient luminous shapes which sweep incessantly from the top right of the screen frame, creating a dynamic counter balance to the original moving light forms. These new light shapes take on a sharp magenta hue and glow with a renewed intensity and luminosity. As they sweep across and around the screen with a distinctive dimensionality, their oblong structures assume a graceful crescent-like form which twists and curls through the inky darkness.

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[9] Scheffauer, Herman G, *New Vision in the German Arts*. (New York: 1924), pp 145-147. Quoted in Standish D Lawder, *The Cubist Cinema*. (New York: New York University Press, 1975), pp 60-61.

Ruttmann emphasises the contrast of these contorting dimensional shapes with the persistent swelling blue light spheres whose rhythm continues in a steady pulse of powerful luminosity. Light itself is represented as a series of wave forms, and Ruttmann's aesthetic configuration assumes a startlingly apposite visual correspondence to the explanation of the physiological basis of visual perception offered by Bruce and Green who state:

> Light is one form of electro-magnetic radiation; a mode of propagation of energy through space which includes radio waves . . . One way in which we can picture the nature of electro-magnetic radiation is as a pattern of waves propagated through an imaginary medium.[10]

The light shapes of *Lichtspiel Opus 1* continue to develop more rapid rhythmic intensity, weaving a pattern of luminous movement diagonally across the screen from top right to bottom left, and top left to bottom right. Expanding dramatically, the shapes generate powerful flashes of light which momentarily overwhelm the darkness of the screen. As a result of Ruttmann's technical approach, the blackness of the celluloid backing begins to obtain a slight surrounding glow at the periphery of the screen frame. This contributes an additional sense of tonal dimensionality to the imagery whilst also affirming the specific nature of the medium of film material and its origins in pure light: Light itself gives life to the images and the possibility of image.

The black backing is subsequently subtly altered into a glowing blue light which contrasts with the magenta light shapes swooping across the surface. This has a

considerable effect upon the perception of the film's luminosity - the prior staccato chiaroscuro effect has now been replaced by a sense of light dynamically interacting with more light - the film now becomes a literal demonstration of its title, a light play. The large round light forms are gradually superseded by a series of large triangular forms which appear to rhythmically stab upwards into the frame. This adds a different perceptual sensation to the structural interplay of luminous surfaces. A further striking correspondence here emerges with the physiology of visual perception as described by Bruce and Green in their consideration of the processes by which light travels through space:

> Imagine an environment illuminated by sunlight and therefore filled with rays of light travelling between surfaces. At any point, light will converge from all directions, and we can imagine the point surrounded by a sphere divided into tiny solid angles. The intensity of light and the mixture of wavelengths will vary from one solid angle to another, and this spatial pattern of light is the optic array.[11]

The optic array of *Lichtspiel Opus 1* then reverts to deep darkness and gives an alternate sense of light relationship to the angular slivers of blue light which cut across it. At this stage, Ruttmann dissolves the sharp edges of light into a more harmonious mingling of levels of luminosity. The glowing brightness of the magenta tones blend and merge into the softer glows of pale blue light generating a nuanced intonation of light levels. The screen surface now appears to undulate with a varied tonal resonance. Partial spheres and suggestive curves of subtle light begin to play a pattern of pulsating light energy across the screen. These spheres have a suggestion of the failing light of sunset and begin to charge the screen with a warm surge of

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[10] Bruce, Vicki and Green, Patrick, *Visual Perception: Physiology, Psychology and Ecology*. 2nd Edition. (London: LEA, 1990), p 2.

glowing intensity. Hot red and orange begins to swell into areas of the screen, pressing perceptually against the darker peripheries. The large light shapes appear to aggressively prod into the dark centre of the frame, repeatedly flashing momentary pulses of light into the depths of darkness. The light globes then seem to shrink and crawl upwards across the screen in an anthropomorphic manner, living pulsating organisms of pure light propelled by their own luminosity. These anthropomorphic pulses of light then expand dramatically, filling the entire field of vision before transfiguring yet again into floating forms which move across the screen like waves, in the literal form of light. As the pulses of light gather increased rhythmic pace and intensity, so the screen appears to generate a powerful glow which expands and brightens, giving the screen surface itself a sense of dimensional luminosity. At this point, the moving light forms change direction and begin to sweep vertically up from the bottom to the top of the screen. Rushing upwards are fragments of light which alternate between large spheres to small spheres and numerous smaller crescents of light. Intriguingly, a large blue sphere of light swells upward from the bottom of the screen to conclude this phase of the light play, and for several seconds the screen is again enveloped by a pervasive utter darkness. The duration of this period of darkness has a fascinating perceptual effect. It reminds the viewer in a profound manner that the imagery of film depends entirely upon the projection of interplaying light forms. The deep static darkness is eventually fractured by the stabbing angular blue light shapes which pierce into the frame alternately from top and bottom, moving from left to right across the screen, and then from right to left. These angular light shapes then blend into smaller crescents of moving light which surge

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[11] Ibid, p 4.

repeatedly across the screen in a diagonal direction. As they do so, the pure black backing of the screen again begins to take on an ephemeral dimensional glow. This intensifies the sense of patterned luminous harmony and contrast.

The sharp light shapes appear to conflict with the other light shapes in a choreographed interplay of tone. This generates a rhythmic pattern of light movement, before the blue angular light shapes are swept aside by curvaceous swelling and contorting pulses of pale orange light forms, which bulge from right to left, and back. These are then joined by strange swooping crescents of yellow light which twist and veer in a multi-directional manner reminiscent of aquatic creatures. Again, Ruttmann emphasises the harmonious subtlety of light, as he washes light tones across the screen in an undulating blend of interweaving levels of tonality. The screen glows with a warm pink light which is modulated by glowing alternate tones, before the black darkness returns to assert its dramatic sense of contrast. Brightness and darkness are built up into a pulsating series of contrastingly phased effects as *Lichtspiel Opus 1* generates a crescendo of luminous reciprocal responsiveness.

Both triangular and spherical blue light forms sweep the screen surface clear, prior to the film's second key phase of pure darkness. Again, the durational period of blacked-out screen lasts several perceptually crucial seconds, before the screen erupts with an explosion of clashing relentless brightness. Orange and pink columns of light sweep back and forth across the screen in the style of searchlights, filling the screen with the informative content of illumination. This oscillating motion of the columns of light is replaced by a glowing circular shape which momentarily suggests

the image of an eye gazing from the screen. It is an eye of light which hypnotically curves from side to side, filling the screen with increasing light levels. Symbolic of the physiological wave quality of light, this circle is also reminiscent of the sun and its pervasive illuminating influence. As it continues to sweep from side to side, rectilinear slabs of light tumble from each edge of the screen. The circle of light fades into a flickering intermittent pulse which is overlaid by a curving, spiralling shape of green light, until the bright searchlight column returns to scan the screen. This column of light is subsumed into a bright tonality which pervades the entire screen, until rhythmic intonations again split up the picture field into a left/right pattern of dynamic moving light.

The film concludes with a particularly painterly wash of light levels, as an expanding glow surges gently upward from the lower centre of the screen to blend into other levels of light intensity. Finally, an orange mass bulges upward into the pale blue light of the screen and then recedes, leaving the surface gently glowing, which contrasts significantly with the film's opening darkness. *Lichtspiel Opus 1* takes the viewer on an optical journey through a dynamic interplay of light and dark which ultimately affirms the crucial perceptual primacy of light in the apprehension of filmic imagery.

Lichtspiel Opus 1 also exposes phenomenological concepts in relation to light, by scrutinising illumination as both perceptual phenomena and physical appearance. The fusion of these vital elemental factors in the film may be explicated through reference to Martin Heidegger's emphasis of the fact that the original Greek usage of

the term 'phenomenon' meant to reveal something, to make manifest or render accessible. He states:

> . . . the term 'phenomenon' . . . means that which shows itself, . . . to bring to the light of day, to put in the light . . . in other words, that wherein something can become manifest, visible in itself. Thus we must keep in mind that the expression 'phenomenon' signifies that which shows itself in itself, the manifest. Accordingly . . . 'phenomena' are the totality of what lies in the light of day or can be brought to the light . . . Now an entity can show itself from itself in many ways, depending in each case on the kind of access we have to it.[12]

In this regard, then, Heidegger is developing the concept that it is precisely the visibly objective element which is at the forefront of what a perceiver phenomenologically experiences. In *Lichtspiel Opus 1*, similarly, light itself is visibly 'appearing' in terms of becoming manifest, of showing itself in itself. It is important to bear in mind here the visual simultaneity between the represented appearance of light, and the recognised actuality of light. Heidegger notes that the ways in which objects of perception appear can be modified by the forms of access available to them. The form of access to light in *Lichtspiel Opus 1* is through the pure opticality of visual perception. Additionally, Heidegger points out that objective elements are capable of appearing beyond themselves, as likeness or resemblance:

> Indeed it is even possible for an entity to show itself as something which in itself it is *not*. When it shows itself in this way, it 'looks like something or other'. This kind of showing itself is what we call 'seeming'. Thus . . . that which looks like something, that which is 'semblant' . . . If we are to have any further understanding of the

[12] Heidegger, Martin, *Being and Time*, trans J MacQuarrie and E Robinson. (Oxford: Blackwell, 1962), p 51.

> concept of phenomenon, everything depends on our seeing how what is designated in the first signification . . . ('phenomenon' as that which shows itself) and what is designated in the second ('phenomenon' as semblance) are structurally interconnected.[13]

Lichtspiel Opus 1 simultaneously projects the manifest and the semblant; the film structurally interconnects these elements by concurrently resembling the perceptual configurations of light waves and rays, whilst also being a physical manifestation of light itself - the film is a fact of light playing upon the surface of the screen. The phenomenological impact of *Lichtspiel Opus 1* resides predominantly within this perceptual fusion of the states of appearance and resemblance, of light being experienced as within itself and beyond itself. The film may also be regarded, therefore, as perceptually 'symptomatic' of the experience of light. Heidegger utilises the concept of symptoms in expanding his definitions of phenomena, appearance, and resemblance. He suggests that symptoms pertain to elements which are indicative rather than explicit:

> Thus, appearance, as the appearance of 'something', does *not* mean showing-itself; it means rather the announcing itself by something which does not show itself, but which announces itself through something which does show itself . . . All indications, presentations, symptoms, and symbols have this basic formal structure of appearing, even though they differ among themselves.[14]

Walther Ruttmann delivers a powerfully phenomenological experience of light in *Lichtspiel Opus 1*, precisely by configuring illumination as a key symptomatic quality of the film. There is no mere photographic depiction, duplication or representation of the objects of lighting - such as candles or lamps - but rather the

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[13] Ibid, p 51.
[14] Ibid, p 52.

profoundly perceptual sensation of elemental illuminant sources projected upon, and reflected from, the screen itself. The illuminations of the film depend, in a complex structural manner, upon the diverse directional distributions of light across the totality of the screen, and crucially upon the physiological processes of visual perception and cinematic absorption and reflection of light. *Lichtspiel Opus 1* is a filmic phenomenon of luminance.

In 1931, Ruttmann made *In Der Nacht*, a film photographed by Reimar Kuntze and set to the music of Robert Schumann. Eberhard Preussner suggests that bonding music with images could be limiting and damaging to the boundless nature of musical fantasy, but concludes:

> It must still be acknowledged, however, that Walther Ruttmann's pictures are full of fantasy and not at all restrictive. In a certain way they take shape as a unified filmic and musical fantasy.[15]

In Der Nacht begins with a shot of a static female pianist who is momentarily seen lit with a strong directional flood of illumination emanating from the right side of the screen. The light then drains from the shot to blend into an abstracted pool of pervasive darkness. A flickering ripple of light then dances across an undulating liquid surface which fills the entire screen. The film then cuts back to the pianist who now begins to play her piano. She is shot with a very sharp and dramatic chiaroscuro light which rises from a single source toward the lower right of the screen. This contrasts strongly with the surrounding veil of utter darkness, and gives the pianist an eerie ethereal luminosity as she stares blankly toward an off-screen

point. Her three-quarter profile splits the screen in a dramatic monochromatic line slightly left of the centre of the screen. The intense contrast of light and dark here creates a statuesque quality as the pianist is seen as an illuminated series of contours projecting outwardly from an inky black backing. The camera very briefly captures a downward point-of-view shot of the pianist's hands flashing across the keyboard, the black and white keys emphasising the fixation upon dramatic monochromatic contrast. The scene then cuts to an abstracted visual symphony of moving illuminated water, followed by a delicate pattern of sparkling light reflections upon a gently quivering surface of dark water. The intensity of light configuration in this sequence is striking, and initially utilises a single stark light source which is followed by more diverse patterns of contrasting and overlapping light sources which reflect vibrantly across the translucent mirror-like surfaces of moving water. The water alternately changes from a surface of gently rippling movement to more powerful surges of flow. Ruttmann uses light as an element of luminous movement which varies in intensity and dynamism according to the surfaces upon which it reflects. This concept of the dynamic nature of light in relation to surfaces of reflection is examined by Ian Gordon in *Theories of Visual Perception*:

> The eye is bathed in a sea of radiant energy, of complex interactions between light rays moving in different directions, many of which have been reflected by surfaces. The visual world comprises *surfaces under illumination.*[16]

The screen surface of *In Der Nacht* proceeds to fill entirely with the undulating flashes of reflected light which become disembodied fragments of luminosity,

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[15] Preussner, Eberhard, *Neue Ton-Bild-Versuche.* Melos II (1931), pp 368-9. Quoted in Walter Schobert, *The German Avant-Garde Film of the 1920s.* (Munich: Goethe-Institut, 1989), p 92.

communicating in their own right as distinct from their unidentified source, and revealing little of the environment with which they interact and partially illuminate. Ruttmann then turns attention upward to the clouds which are softly lit and gently moving. Again, the mysterious undulations of light and dark fully cover the screen surface in a symphonic configuration of pure tonality. The gently lit moving cloud patterns have a soft sfumato effect which contrasts strongly and expressively with the sharp-edged light patterns of the chiaroscuro water sequences. Ruttmann accentuates this contrast with an editing montage of the sharply-lit water presented in a surge of fifteen separate shots compressed into a few seconds. This rapid-cut montage exacerbates the staccato effect of the sharp lighting style, and sits between two segments of relatively long takes.

The camera then cuts back to the pianist and, moving gently, zooms closely toward her. The lighting of the pianist has moved from the sharp chiaroscuro single source emanating from the right, to fully illuminate her from a frontal source - softening and warming her image. As the camera draws closer, the illuminated facets of the pianist's face fill a larger proportion of the screen, and light begins to assume a stronger and more expansive status in relation to the pervasive areas of surrounding darkness. The film progresses into an impressive wide angle scene of a rippling wash of light across a lake, fractured and dappled by a network of branches and leaves. A small yacht appears upon the ephemeral surface of rippling liquid-light as a silhouetted black triangle moving slowly from left to right. The light structure here is strongly horizontal, with a sharp direct line between pure light and dark toward the

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[16] Gordon, Ian E, *Theories of Visual Perception.* (New York: Wiley, 1989), p 152.

top of the screen. The variants of direct and indirect sunlight are utilised by Ruttmann to construct a complex aesthetic network of light responsiveness. In *The Artful Universe*, a fascinating study of the connections between art, science, and perception, John Barrow accounts for the nature of the apprehension of sunlight under differing specific circumstances:

> If we consider the reception of scattered sunlight on the Earth's surface, we know that much of the Sun's radiant energy is absorbed by water vapour and ozone in the atmosphere . . . If we look away from the Sun, we are seeing light that has been scattered in the atmosphere . . . If we look towards the setting Sun, we receive the long-wavelength photons that are scattered least en route to our eyes.[17]

To an extraordinary extent, therefore, Ruttmann exposes the elemental optical experience of sunlight in terms of environmental setting and circumstances. *In Der Nacht* then shifts the content of its attention away from the representational scene of the dramatically lit lake, to an abstracted surface of expanding circular light ripples moving outwardly across a water surface shot from above. Here the screen itself appears as an undulating surface of tangible light. These curving ripples of light initially travel downwards across the screen before an edit alters the direction into a left to right movement, with the light source clearly emanating from the right. Another edit moves the ripples into a right to left direction as Ruttmann generates a multi-directional array of light patterns. A brief shot of the pianist, now lit directly from above, is ensued by an entrancing montage of chiaroscuro light sequences: firstly of the surging currents of water, then of the dramatic silhouetted configurations of branches and undergrowth, with a vibrant glow of expanding

backlighting in which darkness is replaced by light as the grounding tone of the screen surface. An array of moving leaves are shot in a succession of contrasting angles, all with a harsh downlight which emphasises their rapid movement. Partially lit water then flashes from each side of the screen in a stroboscopic alternating visual symmetry, until Ruttmann alters the rhythmic pace of the imagery to capture a slowly moving cloud passing across a black sky. Aglow with a bright purity of light, disembodied and autonomous, the cloud appears as an abstracted cluster of light intensity.

Using the cloud sequence as a rhythmic undulation, Ruttmann then returns to a montage of rapid editing and strong light contrasts, as he generates a visual symphony of light and dark. This is underpinned by a similarly monochromatic distinction between acceleration and deceleration of editing. Slowing the pace, Ruttmann captures flashes of moving light which recall the organic moving light shapes of *Lichtspiel Opus 1*, before veiling the viewer in several seconds of pure uninterrupted darkness. This is followed by an onslaught of dramatic light patterns in which the objective nature of the illuminated surfaces, whether rippling water or undulating clouds, become detached from conventional significance and light itself becomes the object of moulded expression. A swirl of illuminated smoke against the dark surroundings is followed by the ever expanding outward movement of circular ripples of light which surge in rhythmic pulses of hypnotic regularity across the screen, filling the viewer's field of vision momentarily with light. These circular

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[17] Barrow, John D, *The Artful Universe: The Cosmic Source of Human Creativity*. (London: Penguin, 1995), pp 174-5.

floods of light subside into the smoky sfumato of receding shadowy tones before utter darkness again descends across the screen, signalling the end of *In Der Nacht*.

A key quality of the role of light in this film may be located in the bond of its sensory perception and pictorial representation. Edmund Husserl partly utilised the phenomenological term 'noema', in order to describe the nature of the bond between sensation and appearance, between sense and object. The concept of the noema involves the idea that a vital route toward apprehending the reality of an object is via the sensory manner in which the object makes its appearance to the viewer. *In Der Nacht* channels the sensory nature of light to the viewer by fusing a variety of elemental levels of appearance, so that light announces itself as both integral to the cinematic projection as well as transmitted through that projection. Furthermore, light is perceived in the film as existing precisely within the related fusion of sensation and representation: the viewer is at once present yet detached from the place and time of these illuminated objects and events. This simultaneous presence and detachment of the viewer, though, does not diminish the phenomenological penetration of the imagery. In fact, it intensifies the profoundly specific experiential quality of cinematic sensation and is an integral component of a system of contextualising imagery in relation to its mode of presentation. Cinematic optical sensation, in this regard, operates in accordance with a system of perceptual reflexivity. Husserl states that: ". . . for the phenomenology of 'true reality', the phenomenology of 'empty illusion' is wholly indispensable."[18]

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[18] Husserl, Edmund, *Ideas: General Introduction to Pure Phenomenology*. Trans W R Boyce Gibson (New York: Collier, 1962), p 388.

In exploring the bonds between objects and the perceptual acts of apprehending them, Husserl distinguishes between what he describes as the 'real' and the 'ideal'. The 'real' component of perception involves the temporal aspect, or moment, of apprehension. Cinematic perception, of course, is profoundly temporal, and this moment of apprehension is vital to the phenomenological noema of film imagery. Husserl expands on these ideas by offering the example of perceiving a tree which alters in the temporal dimension. He suggests that the act of perception modifies the objectivity of image:

> We see this tree there . . . presenting also modes of appearance which differ greatly in so far as during the course of our continued observation we shift our spatial position in regard to it, stepping to the window maybe, or changing the position of head or eyes, and at the same time perhaps, relaxing the mechanism of accommodation or tightening it up.[19]

Husserl considers such procedures in relation to a variety of contexts, including the reality of the bond between factual objects and the factual perceptions of the subjective mind toward them. *In Der Nacht* engages precisely such processes in terms of the direct expressivity of the status of light: an integral component of the experience of the film emerges from and extends beyond the representational objects, and in so doing becomes an integral part of perceiving light as a pure cinematic sensation. Husserl continues:

> While the 'perceived tree as such', or alternately, the full noema which is not affected by the suspending of the reality of the tree itself and of the whole real world, does indeed belong to the essence of the perceptual experience in itself, on the other hand this noema . . . is as

[19] Ibid, p 260.

> little contained . . . in the perception as is the tree of the real natural order.[20]

This form of sensory simultaneity and reciprocation then, is something which stands prominently in the cinematic fusion of image and effect in Ruttmann's *In Der Nacht*, and signifies the vitality of the film's perceptual focus and transcendence. Just as Husserl emphasises the notions of perceptual fixity and expansion, so too does Ruttmann expand sensory experience through intensive visual focalisation.

A further affirmation of the means by which light itself interacts with the film surface to generate cinematic objects, can be found in Man Ray's *Le Retour à la Raison* (1923). The film opens with an intriguing sequence in which a strange grainy darkness is gradually infiltrated by a profusion of granular particles of various tonal depths of luminosity which appear to rush toward the viewer. Although brief, this sequence introduces the film itself as a layering of various light levels and suggests that the filmic experience ought to be recognised as an undulating journey through a variety of contrasting and evolving degrees of luminosity. The film might be described as the original work of materialist film-making, utilising as it does the very malleability of the celluloid as a defining component of visualisation, and perpetually foregrounding the film-strip as a material medium.

The rhythmically rapid opening shot flickers the luminant energy of the film into action, flashing a series of controlled facets of light across the screen and fragmenting it into a surging mass of reflective surfaces of swirling light. This shot

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[20] Ibid, p 261.

quickly cuts into a brightly backlit screen surface which glows warmly from a centre left location. Onto this light surface appears a black shadow, oval in shape and given a slight suggestion of dimensionality by peripheral tonal variation of shade. This dark shadow of shape twists and swirls violently in the centre of the screen and is immediately superseded by an extreme profusion of rapidly moving linear forms which are, in fact, silhouetted pins crammed onto the film surface. The pins, part of Man Ray's famous 'Rayogramming' technique of exposing objects directly upon the celluloid surface, take on an organic quality as they jostle across and around the frame. The materialist technique here has interesting implications in terms of light: the screen surface itself seems to pulsate with altering light intensity, a sense of tonal depth suggesting perceived spatiality, yet still affirming the concept of opaque screen surface. Although the pins themselves are silhouetted, they appear to vary slightly in tonality as they overlap, generating the slightest suggestion of depth. Here Man Ray successfully uses light variation to explore the perceptual tension between a simultaneity of surface and depth. Edmund Husserl has suggested that elements which present or exhibit themselves at multiple levels, through what he calls *abschattungen*, are a significant part of the noematic procedures of phenomenological perception.[21] He goes on to make reference to elements whose perception is generated through transcendence, structured upon the pure basis of material experience, and which thus achieve a form of self evidentiary presence.

The light levels in *Le Retour à la Raison* continue to be thrown into a dynamic profusion as Man Ray congests the frame with rapidly moving particulate grains

[21] Ibid, p 262.

whose tonality ranges from peaks of pure light to clusters of total darkness. This profusion of granular light almost defies perceptual definition in its rapid movement and relentless evolution and transformation. Yet it does convey a dramatic purity of filmic representation, an acknowledgement of the status of filmic objects as no more than an array of variously structured light levels and formations. This particulate matter then cuts to a dark black backing across which appear a series of handwritten letters and words. Again, these are detached from logical literal linear meaning, but rather derive expressive strength and significance from their dynamic interaction with the light and motion of the work. These fragments of writing, detached from significatory origin, flash out of the darkness and appear as almost neon swirls of meaning, their curvaceous forms and lines luminous and bright against the shadows of the backing. Once again, the use of tonality gives these fragments of light-writing a suggestion of dimensional depth, not only through their overlapping clustered arrangement, but in the tonal variations of light which exist within them.

Man Ray then cuts the imagery into a negative inversion of light by presenting the same rapidly twisting oval shape as before, but now set upon a dark black backing. The shape is now illuminated and spins in a pool of variating light - a spinning tack upon the screen surface which draws the eye hypnotically towards its central light source. In this way, Man Ray is structuring a series of light inversions and conversions of similar objects shot in opposite light levels - initially dark upon light, then light upon dark. The very manipulation of light itself here becomes a tool of purely visual filmic expression. The screen is again congested with twisting 'Rayogrammed' pins, but now they are shot in negative as dynamic surges of linear

light energy which cut and bisect the darkness of the screen. A phase of more tonal granularity precedes a distinct alteration in the visual rhythm of the work as the screen becomes totally dark and an eerie spherical ball of light drifts across the top of the screen, leaving a strange incandescent trail as it goes. It is essential to acknowledge the extremity of Man Ray's rapid cutting in this work. He crams every second with a cluster of separate frame shots which enforce his visionary use of clashing and contorting light levels. The screen then flashes into a burst of pure flat light before becoming congested with a mass of moving and glowing spheres of light. These light spheres move so rapidly that they are perceived as a holistic array of radiating luminosity. Another dramatic alteration of visual rhythm is introduced as the film cuts to the almost purely abstracted dynamism of fairground lights swooping across the screen in a right to left direction over an inky black background of darkness. Although the visceral dynamism of this shot and its fragmentary framing seem to detach the image from objectivity, there is a tantalising sense of the camera as an autonomous eye briefly glimpsing an objective world.

Man Ray uses his editing techniques to generate an impulsive oscillating suggestion of the rotating swirls of fairground lights by night, and often plunges the viewer into moments of utter darkness, allowing the lights to emerge unexpectedly at peripheral areas of the darkened screen. At this point, the film is presented at the purest level of dramatic contrast between light and dark. The darkness is intense and enveloping, whilst the lights appear as sparkling points of pure white light. Tonality here has been abandoned in favour of total contrast. These bright sparks of electric white light sweep across the screen in curving arcs and linear surges, left to right and right

to left. The moving lights create a sense of implicit connectivity between viewer and screen as it becomes unclear whether the lights are moving, or the camera is moving, or a combination of both. These lights variously become larger and closer, flooding the screen with brightness, or distantly small and faint, suffusing the screen with darkness. The interplay of light levels creates a sensation of powerful luminous undulation. For several seconds, the image cuts away to a mysteriously dark, smoky and undefined shot. The screen is shrouded in shadow and only the merest suggestion of a circular form seems to emerge, as the eye struggles to locate a point of visual engagement. Man Ray here affirms the essential vitality of light as the key provider of visual information, and reminds the viewer that light is the very lifeblood of cinematic sensation. In this regard, it becomes both the immanent material of the work and its transcendent experience. Husserl expounds precisely such a concept in his phenomenological theorisation of the 'noema':

> The reference to the phenomenological reduction and similarly to the pure sphere of experience as 'transcendental', depends precisely on our finding in this reduction an absolute sphere of materials and noetic forms, to whose interlacings, nicely articulated in accord with an immanent essential necessity, belongs this wonderful conscious possession of something definitely or definably given in such and such a way, stand over against consciousness itself as in principle . . . transcendent.[22]

A staccato sequence in *Le Retour à la Raison* comprising variously illuminated threads, strings, springs, and spirals clusters onto the screen surface against a dark backing, their reflected light fuelling the optic incentive to gather visual information from the shadows. More granular movement creates a stroboscopic profusion of

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[22] Ibid, p 263.

flashing light which pulses from the screen generating the sensation of cinema as a living organic entity of light intensity. Man Ray continues to cluster and congest the screen surface, and the viewer's perceptions, with an intensely proximal cornucopia of shapes, forms, and objects of luminosity. The flashing energy of light sequencing is in many ways a foregrounded parallel of the means by which the compacted flow of luminant imagery makes possible any cinematic experience. Crucially, the visceral visual energy of Man Ray's *Le Retour à la Raison* is derived from representational objects shot and lit in such a way as to detach them from their objective status and infuse them with a renewed, purely expressive, visual value.

A curious vertical rotating scroll sways upon the screen, subtly lit from the left. Its shaded tonality gives added dimensionality to its rotation and rhythm of movement. It is a column of structural light-motion separated from visual information as to its source of movement, but saturated with visual information about light. As it twists and spins, it appears to unravel and its cylindrical quality alters in dimension to appear as a contorting surface as the light plays across its form. A complex depth of tonal variation and shadow then appears, as Man Ray presents a rectilinear mobile spinning at an angle and lit from the front which casts a moving series of linear shadows upon a contoured surface to the rear. The pattern of light upon the mobile itself contrasts intriguingly with its own transfiguring shadow. Although implicitly connected, the play of related movement between the mobile and its shadow, calls into question the role of light as both a purveyor of visual information, and as a manipulator of the effects of visual information. At times, the mobile and its shadow appear to move with separate modes of synchronicity, yet light itself is always the

unifying factor in the bond between object and shadow. Here Man Ray explores his previously asserted contrast between positive and negative, the inversions of light and dark. The mobile's reflected surfaces of light are a related inversion of the black silhouettes of the shadow. Each convey information about the illuminated object, but each in crucially distinct and influential manners. As the mobile spins, the light levels fluctuate as greater or lesser degrees of light are reflected from various alternately visible surfaces of the mobile. In this way it is made clear that light is also affected by the form and motion of the surfaces which reflect it. At times in this sequence, the screen is divided into two distinct areas. One, of the mobile itself illuminated against the dark backing, and another of the dark shadow etched upon a bright backing surface. It is a further assertion of the transfiguring duality of light and dark. Man Ray further enhances the sense of inverted duality by momentarily reversing the direction in which the mobile rotates. This is a very rapid flicker-edit shot which is crammed into a fraction of a second in the sequence, yet has a very distinctive effect in the filmic composition. Unlike previous cuts of sequence, the rotating mobile is faded from the screen to move onto the final sequence which again presents a rotating central figure which is suffused with the visual influences of light and shadow. In this case, the central figure is the upper body of a woman whose curvaceous form slowly turns toward, and away from, a light source to the upper left of the frame. As she turns, her body is variously contoured and patterned by a network of linear shadows cast upon her. Occasionally, parts of her body delve into areas of total darkness. The effect is that the objective content of the image, in this case the female form, becomes reconstituted by an alternate level of visual sensation created by the pure optical affectivity of light intensity, directionality, and

configuration. In *Logical Investigations*, Husserl develops the concept that the reciprocal totality of object and abstract represents the phenomenological reality of direct perceptual experience:

> By the real . . . content of an act we mean the sum total of its concrete and abstract parts, in other words, the sum total of the partial experience that really constitute it.[23]

This form of phenomenological visual perception is extended in *Le Retour à la Raison* as the screen is divided once more into a series of clearly defined segments which are controlled and separated by the light itself. On the left is an area of complete darkness, in the centre is the graduated tonality of the moving female body, and to the right is the suggestion of her shadow as it is cast onto an illuminated surface. The linear contours of shadow which embrace and caress the woman's body have a highly painterly plasticity which seems to affirm the sculptural nature of shape as being utterly dependent upon light for the generation of informative and expressive content of image. Man Ray's denouement in this brief but multiplicitous film-work of light formation, is a conclusive deployment of visual inversion. As in prior phases of the work, and indeed his ongoing thematic device of *Le Retour à la Raison*, he inverts the light and directionality of the image to create a negative of the preceding scene. The woman's body becomes lit from the opposite side of the screen, and is saturated by a surge of light which fills most of the screen and recasts her body as a darkly ethereal curvaceous shadow. This film serves as a metaphoric illustration of the rationale of light as the prime purveyor of reason in apprehending visual imagery. Yet at the same time, it ingeniously highlights the way in which

luminosity concurrently clarifies and manipulates. At all times, alongside the informative content of illumination comes the inversely manipulative effect of shading and alteration. Light is the pure disseminator of visual impulse, but also the critical modifying influence in processes of visual perception.

Man Ray's thematic device of inverting the image to create a negative scene strongly corresponds with Husserl's concept of 'apperception', whereby objects of perception are apprehended via the process of passing through a surface medium of the perceptual act. Husserl describes this as "Apperception as connected with expression and with intuitive presentations."[24] In an intriguing echo of Man Ray's inverted sensory visual negatives, Husserl states that: "Sensations plainly only become presented objects in psychological reflection."[25]

Apperception is a crucial concept in Husserlian phenomenology, distinguishing as it does between two key means of perceiving objects. One of these involves the object of perception itself, the other involves the process of passing through the experience of the perceptual act itself. Husserl develops the idea of how these two distinct aspects influence the means by which objects become apprehended in the conscious mind. He utilises the term 'lived through', to describe the perceptual bond with sensory experience, and thus suggests that perceivers pass apperceptively through sensations. Husserl continues:

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[23] Husserl, Edmund, *Logical Investigations* trans J N Findlay. (London: Routledge, 1970), p 576.
[24] Ibid, p 309.
[25] Ibid, p 310.

> Phenomenological analysis teaches us, further, that sense-contents provide, as it were, the analogical building stuff for the content of the object presented by their means. Hence, talk of . . . intensities, etc, as, on the one hand, sensed, and as, on the other hand, perceived or imagined.[26]

In 1927, Man Ray made another film which powerfully exemplifies the phenomenological experience of light, and incisively examines structures of optical sensation. *Emak Bakia* opens, significantly, with a single establishing shot of a light-saturated film frame. The screen itself momentarily glows with a sun-like intensity, confirming the preoccupation which Man Ray intends to explore in terms of filmic illumination. This shot then cuts into a darkened frame upon which the words 'Cinèpoemè' appear, lurching and undulating as if reflected upon an oscillating mirror. The letters of the word glow with an intensive luminosity which contrasts strongly with the deep darkness of the surrounding area. This shot blends into the similarly undulating words which confirm Man Ray as the film-maker, and the year of production. The imagery again cuts into an intensely glowing warmth of luminosity, an ochre-yellow hue of light which will develop throughout the film. Man Ray foregrounds the material nature of film and its apparatus by shooting an image of a camera as the cameraman peers into the viewfinder. Superimposed upon a lens of the camera is a human eye, gazing impassively at the viewer. Here Man Ray asserts the concept of the parallel between filmic image creation and human visual perception. Indeed, in examining the film-works of Man Ray, Steven Kovacs refers to "the leitmotif of the eye" in *Emak Bakia*.[27]

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[26] Ibid, p 310.
[27] Kovacs, Steven, 'Man Ray as Filmmaker' *Artforum* II (November 1972), p 79.

The core processes of visuality concern Man Ray in this work as he seeks to examine the very structure of image perception. The instructive opening shots then cut to one of Man Ray's famous 'Rayogramme' images of granular particles filling the screen and swirling around vibrantly, apparently saturating the viewer's field of vision. Again, there is a fascination with the role of light as the crucial keystone of filmic imagery. A sensation of flickering flashes of light echo the concept of film as a stream of relentless variations of luminosity. This flicker effect steadies into an image of daisies in a field as the camera slowly lurches across their arrangement. As the camera moves, so the fixity of the daisies is disrupted and they appear as sweeping flashes of light points. In an echo of *Le Retour à la Raison*, Man Ray again features his 'Rayogrammed' pins upon the screen, appearing as modulated linear configurations of tonality upon a black backing, a slight suggestion of depth is also implied by the tonal diversity. Additionally, the spinning tack reappears from his previous film, still rotating violently and appearing as a hypnotic focal point of light intensity in the centre of a darkened screen. At this stage, Man Ray takes his exploration of light into an intriguing new area. Moving lights cross-cross the screen, appearing as slightly defocused pools of ethereal light. Reminiscent of the moving fairground lights in *Le Retour à la Raison*, these lights have a renewed sensuality and elusive quality which powerfully evokes their status as statements of the purity of light in this film. Rotating with a rhythmic regularity, these lights cross the lower centre and upper left regions of the screen, the sharpness of each light subtly altering into a softer blur of luminosity as it appears to spin away from the lens.

The rhythmic pace of this symphony of disembodied moving light increases as the single points of light begin to cluster into groups of three, possibly as a result of reflection and refraction. These swirling lights are succeeded by a softly glowing screen surface across which a series of fragmentary words pass. These words are built up of a series of individual dots of light which are detached and discrete, seemingly emphasising the mysterious discontinuity of the words as they eventually fade into an ever-diminishing pattern of sparse light-spots. This is followed by an extraordinary sequence of dramatically dynamic moving light configuration, as Man Ray fills the screen with the rapidly moving forms of mechanical cogs and wheels in close up. Across these mechanised formations falls a sharp light which intensifies each facet and surface of the machinery, thus generating a moving pattern of luminosity. In this process, the surfaces of light seem to gain a significance which is distinct and autonomous from the objective status of the machinery. As the sequence flows onward, so the sensation of moving light, surging from right to left, intensifies. The sense of moving light continues, and a pattern of shadows bisects the scene and seems to lend a dimensional suggestion of gradual vertical movement. The sequence conveys a very elaborate and complex pattern of light intensity which, in combination with the incessant movement, exemplifies the manner in which Man Ray is capable of using light in a pure and self-referential manner to generate a system of pure visual expression.

This complex dynamic system of moving light facets also creates an intriguing sensation of depth, as the symmetry of the shot draws the viewer's eye incessantly toward the darkened shadowy area in the centre of the composition. The pace of the

mechanical rotation gradually appears to alter, and the direction of rotation seems to reverse. As it does so, the surfaces of light vary their intensity, and alternately guide and manoeuvre the lines of viewer attention across differing areas of the screen. In this way, Man Ray is utilising light's key procedural quality in visual perception as acting as a directional guide for human vision. The angle of the shot alters as the camera appears to look downward upon a slowly rotating, glistening vertical structure. This metallic form rotates at a variety of speeds and is alternately seen in close-up and at a wider angle. In this process the clusters of light which build the image, variously alter in focus and intensity so that the light forms a pattern of oscillating focus and distortion, eventually smothering the screen in a swathe of modulated layers of luminosity. This thematic sense of rotation merges into an image of tightly compressed linearity, as the light is cast from a clear upper left direction onto a spinning series of vertical lines of illuminated forms. This form, which simultaneously suggests mechanisation and organic origin, moves planes of narrow light reflection in a right to left direction across the screen, occasionally altering position to reveal a spatial depth of receding darkness to the rear. Here light is used as an instrument of tactile formal awareness, alternately illuminating projecting prominent structures then veiling the screen in a receding shadow of empty space.

The configurations of light pattern begin to take on greater complexity as a series of angular forms and organic curves sweep across and around the screen, their form apparently consisting of facets of pure light and shadow, implying not only form but the absence of objective form through shadow. Man Ray ingeniously moves curved

mirrors around structured shapes to generate an intense interplay of shadow. Splashes of light delve and twist across pools of shade, as the viewer's eye is relentlessly drawn around the screen surface. The awareness of the eye and the lines of filmic vision is acknowledged as Man Ray superimposes a human eye upon a shot of car headlamps. This creates a composition of three circular shapes in a line across the frame. The eye blinks in the light as the headlamp sweeps forward to the camera. From the preceding sequence of abstracted self-referential light formations, the film then turns to objective representation, but still fixates the role of light in its imagery: an automobile is seen sweeping along a light-flooded avenue by sun dappled trees; a flock of sheep momentarily flash by the camera which now moves aboard the car; a bizarre and surreal shot of a pig is followed by a chaotic surge of luminosity as the camera appears to topple and spin its gaze skyward capturing a profusion of flashing light patterns. Edmund Husserl was interested in the diverse nature of meanings associated with the term 'representation'. He felt it necessary to develop the notion of the existence of different means of representational awareness, and thus began to use the word 'repraesentation' to define a specific aspect of perception which is distinct from merely noticing or acknowledging an object. He states:

> The Repraesentation is, in contrast to mere noticing, a fundamentally different 'mode of being conscious of a content', and indeed precisely that mode which stamps the content as a repraesentant of an object, which object is no part, no fragment, and also no non-independent moment, of the 'representing' act but rather resides in it only 'intentionally'.[28]

[28] Husserl, Edmund, *Husserliana.* (The Hague: Nijhoff, 1950), p 376.

Husserl proceeds to distinguish the intuitive responses to what he terms 'phantasma' from the objective elements of their representation. In phenomenological terminology, then, appearances are apperceived in the sense that they can transcend objective representation to become purely perceptual representation. These concepts correspond profoundly with Man Ray's deployment of the transcendent multi-dimensionality of representation. In *Emak Bakia*, Man Ray continues to intensively examine the camera's capacity to expand the perceptual nuances of objective representation. He captures an apparently endless stream of legs stepping out of the stationary automobile. In this sequence, the screen is predominated by a light-flooded foreground with the upper area of the screen in shade beneath the car. This creates a curiously linear configuration of light and shade which at once seems representational, and additionally conveys an abstract sensation of light and dark acting in unison to generate a spatial illusion of depth. The illusion is intensified by Man Ray's perceptual deception of the viewer in constructing an infinite number of passengers. The optical games continue as a banjo is strummed whilst intercut with dancing legs. The representational level of interest in the play of light broadens as Man Ray guides the viewer into an interior environment where shadow counterbalances the strong light of the exterior. A woman is seen applying make-up and adjusting jewellery before stepping into the powerful light beyond her door. As she does, an impressive composition of light and dark is captured as her silhouetted form moves away from the camera into an expansive block of bright surrounding light. In a subtle way, Man Ray is repeating his fascination for the indissoluble duality of light and dark as positive and negative: light as both key provider of visual information, and central manipulator of visual coherence.

A stunning expansive moving shot captures a waterfront scene as powerful sunlight reflects upon the surging waves of the sea lapping the shore. Man Ray cleverly alters the angle of the camera to create a changing series of contrasts between the intense light of the water and the darker surface of the shore. This creates a linear contrast of light and dark, which alternately appears as horizontal, diagonal and vertical. The sparkling facets of reflected light move in an oscillating reverberation of multi-directional luminosity. The silhouetted outlines of fish appear, shot from above, below, and side on, variously saturated in intensive sunlight or enclosed by peripheral areas of deep shade. Man Ray uses superimposition and camera rotation to intensify the play of reflected surface light as both an affirmation of formal definition and clarity, as well as a statement of the surface materiality of the screen.

The scene then changes in an intriguing expanding iris shot in which the screen is expunged of darkness by an ever-dilating pool of circular light which reveals a shot of a rotating sculptural form, the shadow of which falls to the left of the screen. As the sculpture rotates at various speeds, Man Ray again uses superimposition to intensify the interplay of shadow effects. This creates a strange and distinct tension between light and shade, and enhances an awareness of the indexical bond between the two in image formation. The screen becomes congested with an array of conical and rectangular objects which, as becomes increasingly apparent, create a progressively complex configuration of shadow and depth. A silhouetted cut-out figure leaps across a background of light, before more curious shapes and structures begin to move around the screen, lit with pronounced directionality from the left

side. Revolving reflected distortions again begin to emerge and oscillate across the frame, manipulated by the rhythmic deployment of mirrors and lenses. Light shapes variously shrink and expand, bending and contorting the imagery into a compositional evolution of modulated luminosity, a profusion of rotational light fragments which suggest the crucial nature of light itself as a series of discrete facets which in unison create the visual sensation of cohesive representational harmony. A woman's face is seen bathed in direct light before the scene again returns to fragments of oscillating light surfaces. The crystalline reflections of a glass cube are seen rotating under multi-directional light, focus alterations melt into a profusion of intertwining planar light surfaces. The complex organic configuration of a flower's intricate petals are presented under a strong overhead light before abstracted swirls of disembodied lights continue their symphonic movement. This appears as a fluid contrast of organic detail, an implicit factor in light sensation - the complex nuances of luminant abstraction merely an intensification of natural light quality in objective recognition.

In a phase of surrealist absurdity, a figure steps from an automobile in a sun drenched street to walk into the darkness of a shady building, where a cluster of white shirt collars are pulled from a case and dropped onto a black surface. The collars then begin to rise up and rotate in an eerie yet elegant dance of light upon shade. This swirling dance of light and dark builds in pace until the viewer is confronted by an undulating mass of light clusters swelling into, and shrinking from, the screen surface. The potent juxtaposition of light and dark here intensifies into sensations of pure abstractional undulation as the on-screen imagery appears to defy

definition as either object, reflection, shadow, or illumination. Husserl sought to assert that the direct perception of objective elements is always mediated by what he describes as 'perceptual content'. In this regard, objects are always specifically modified by the nature of their perceptual context, and Husserl regards perceptual states themselves as forming part of a wider psychological expanse which is highly dynamic and connective.[29] Man Ray's graphic juxtapositions, by the same token, actuate such perceptual procedures of sensory connectivity and resonant implication.

Emak Bakia draws to a close by focusing upon a woman's face which has staring eyes painted onto her closed eyelids. Man Ray wittily confirms that vision is thoroughly multiplicitous in the way that it variously apprehends objects of diverse levels of objective and responsive signification. These processes of signification depend crucially, as *Emak Bakia* attests, upon the role of light and its immanent ability both to illuminate and modulate. Thus, the film evocatively elucidates aspects of the nature of perceptual dynamism, and intersects with Husserl's emphases upon the important inherent nature of the contents of perception as influential factors in terms of how objective elements are themselves to be perceptually understood. That is to say, that like Husserl, Man Ray exemplifies the descriptive content of the means of perception in direct relation to the characteristics of that which is perceived. This correspondent approach to the phenomena of perception enforces the concept that the very objects of sensory responsiveness themselves sustain a substantive structural identity, which does not constantly require extraneous modes of exposition. Husserl states:

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[29] Husserl, Edmund, *Logical Investigations*. Trans J Findlay. (London: Routledge, 1970), I § 23.

> Every chance alteration of the perceiver's relative position alters his perception, and different persons, who perceive the same object simultaneously, never have exactly the same perceptions. No such differences are relevant to the meaning of a perceptual statement.[30]

Filmic experience can also be identified in terms of its direct perceptual statement. It involves the concept that the content of filmic presentations can be perceptually transcendent. Laszlo Moholy-Nagy asserts that "the film, with its characteristic visual, perceptional elements appeals directly to the senses".[31]

Moholy-Nagy's 1930 film entitled *Lichtspiel: Schwarz-Weiss-Grau*, instantly establishes a focal concern with the filmic play of light in its opening title shots which consist of an initial image of a translucent globe rotating at a slight angle, with a strong direct light source shining through it to create a strangely dimensional shadow upon a modulated backing surface. The first few frames of the film convey a particularly atmospheric arrangement of complex shadows which run down across the left of the screen and curve over the lower third section. From this darkly angular mass of shadow, emerge a series of arching fragments of shadows which, as they continue to move, reveal the name of Moholy-Nagy as film-maker. These words, painted directly onto the transparent globe, are seen as extensions of the shadow forms themselves and curve into, and around, the pool of dimensional light in the central area of the screen. The result of this technique is a remarkable multiplicity of variously intoned shadows which seem to be shadows *of* shadows. Moholy-Nagy thus generates a sense of a transcendent luminosity in which there is no obvious

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[30] Ibid, VI § 4.
[31] Moholy-Nagy, Laszlo, *Vision in Motion.* (Chicago: Theobald, 1947), p 273.

indexical bond between shadow and object, and their unifying source of illumination. The light itself acts as a multi-dimensional series of levels of transparency and opacity, all of which depend upon the relationship of shadow, tonality, and light direction. The viewer thus becomes intensely engaged with the enveloping nature of these light structures and is denied immediate access to the grounding directionality of light which orients the viewer's grasp of the relative status of objects, space, and depth. For a very brief moment after this shot, the grainy sfumato shadow of a hand holding the curling shape of a film-strip may be glimpsed. This shot suggests the implicit presence of the film-maker in the work, and acknowledges the materiality of the medium and its malleability. The elongated shadow of the film-maker's hand moves to raise variously illuminated pages which respectively elaborate in succession upon the full title of the film-work. The first page appears as a uniform expanse of black shadow upon which glowing letters spell the word 'schwarz'. A further page is raised, lit by a single beam of bright light, upon which appears the word 'weiss'. The omniscient shadow-hand is seen raising a further, final page which of course reads 'grau'. The film then proceeds to delve into a multi-faceted realm of dimensional intonations of complex light and shade in dynamic interaction. Two large black circular shadows rise and move on the right upper and lower sections of the screen in a harsh chiaroscuro contrast with the remainder of the screen and its illuminated surface which appears to glow with an expanding beam of light to the centre left of the screen. Into this central pool of warm light moves an elaborate construction of implied shadow machinery. The tight lines and angular configurations of an ambiguous mechanised kinetic structure spin, oscillate, and track over the screen space. Again the source of light, whether from an origin to the

front or rear of a translucent central panel, is not clearly stated. This adds to the orientational intrigue of the work and the entwining sense of perceptual attachment to this visual array of luminosity. Light, rather then being used as a tool for illuminating information, is being strategically deployed to transfix the senses and confound familiarity. The light dappled across the moving formation becomes superimposed by a grid-like series of darkened panels which allow only a pattern of circular dots of light to partially illuminate the screen. The sensation is one of illuminant enclosure, as the viewer becomes confined to a darkly limited range of fragments of light data.

Vertical linear shadows pass sideways across the circular pools of regulated light, creating a rhythmic flicker of light patterning. Shadows pass over shadows as the viewer is drawn into a central perceptual location strategically rooted between and amidst light sources, objects of illumination and their resultant shadows. This network of shadows, whilst perpetually referring to the implied off-screen movement of rigid objects, creates an ethereal nether-world of intangible tonal dimensions of form and related form. The interweaving shadow-play is very intense, to the extent that light is occasionally totally eclipsed as the viewer is plunged into an inky darkness, deprived of the orienting sense of tonal relativity. As light re-emerges, so a strongly dimensional awareness of dynamic shape rotation becomes clear. The shadows proceed to intertwine and overlap, and in so doing, a simultaneous sensation of surface single-dimensionality emerges, along with a distinct sense of spatial recession. Shadow affirms both the object it exposes in silhouette, and the surface upon which the silhouette is cast. Yet Moholy-Nagy cleverly manipulates the clarity

of surface and shadow, apparently lifting shadows off the surface and animating them in a transcendent further dimension of luminance.

The moving shadow structures vary in pace and rhythm of acceleration or deceleration. Bracketed by swathes of total darkness, each sequence unravels a further level of light and shade sensation. As the shadow structures themselves move, so the light sources also appear to move. A circular pool of light rotates and pauses, then moves across the screen in a further embellishment of the complex light play which Moholy-Nagy symphonically configures and contorts. The light/shade interface is further convoluted by the use of negative photography. The pools of light thus plunge into total darkness, and the shadow-forms are themselves luridly transformed into expanses of intense bright light. The negative inversions of light and dark exacerbate the undulating terms of dimensional orientation. Shadow-forms now become inverted light forms which overlap and interact with each other. Pure structures of light appear transparent and vaguely dimensional through a grainy intonation. Complex narrow-weave patterns of inverted light spots flicker and contort as they pass over an ever-evolving angular pattern of illuminated compositions. Darkness expands in angularly directional movements to be superseded by expanding areas of light networks. The screen surface relentlessly appears to advance and recede, contort and realign, in accordance with the dominance of either light or dark expanses.

The upper areas of the screen become light, and seem to arch over the dimensional forms, dominating the viewer's awareness, before the light passes across the screen

toward the lower section creating a perceptual sensation of rotation. The viewer's sense of fixity is constantly challenged, and an unnerving feeling of undulation repeatedly occurs. Moholy-Nagy then takes the pure dimensionality of light and dark to a more intensive level, increasing the rhythmic oscillations of inverted light and dark, and accentuating the density of the formal configurations which constantly evolve across the screen space. Rotating multi-dimensional grid-forms and spiral structures appear as pure shadow which takes on a fascinating tangible materiality.

Moholy-Nagy uses *Lichtspiel: Schwarz-Weiss-Grau* as a malleable rendering of light itself as expressive medium. It moulds luminosity into an enveloping temporal structure of sculpted light modulation. This fusion of the concepts of material and sensation intersects pertinently with the thoughts of Maurice Merleau-Ponty in *Phenomenology of Perception*:

> It is the very definition of the phenomenon of perception, that without which a phenomenon cannot be said to be perception at all. The perceptual 'something' is always in the middle of something else, it always forms part of a 'field'. A really homogenous area offering *nothing to be* cannot be given to *any perception.* The structure of actual perception alone can teach us what perception is.[32]

The perceptual 'something' of *Lichtspiel: Schwarz-Weiss-Grau* indeed forms part of a 'field', as the viewer's eye variously follows patterns of shade and light in a horizontal, single-dimensional direction before being re-routed onto a diagonal three-dimensional path which draws the eye deeper and deeper into a spatial realm built purely of light relationships and shaded associations. Moholy-Nagy's complex and

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[32] Merleau-Ponty, Maurice, *Phenomenology of Perception.* (London: Routledge, 1962), p 4.

remarkably intricate mechanised shadows variously lurch into, and out of, the screen space insinuating an implicated further spatial realm of luminosity beyond the viewed surface. It is a perceived space in which light rays continue to travel in a multi-directional manner, generating a diverse series of shadow planes and levels.

The complex mechanical optical structures occasionally seem to move in accordance with conventional physics and gravitational laws, yet always veer into an unconventional sensory space as a result of their unrooted status as facets of reflected or restricted light captured in a medium of malleable reconfiguration. As the shadows move, so the light sources move, and the reflective surfaces move. Additionally, the camera eye itself seems to move, which creates yet a further level of perceptual complexity to this elaborate strategy of sensory reconstitution. The unrooted sensation, and unfixity of all these elements intensively propels the viewer's responses into the oscillating multi-dimensionality of the work, and challenges the conventions of the bond between viewer, screen, and depiction.

The strange meeting of very mechanised physical structures, and the insistent denial of their direct representation, is based upon the channelling of all visual information through the distinct and detached vehicle of pure luminosity. Everything seen upon the screen exists purely because of the play of light and shadow, and the viewer is totally dependent upon the purity of light for the delivery of all visual information. This is an ingenious metaphor for the way in which film itself never relays an actual physical object itself, but the chemical rendering of that object through the technical capacities of the apparatus and medium of film. Light, of course, is the essential

basis for the ability of film to capture the original objects of its attention. Merleau-Ponty continues:

> A visual field is not made up of limited views. But an object seen is made up of bits of matter, and spatial points are external to each other. An isolated datum of perception is inconceivable, at least if we do the mental experiment of attempting to perceive such a thing.[33]

Moholy-Nagy exquisitely foregrounds the detached mediation of visual information through the channelling device of film. In *Lichtspiel: Schwarz-Weiss-Grau*, everything witnessed upon the screen is rechannelled to the viewer via the transporting effects of light. Objects are witnessed at a secondary, or transcendent, level made possible only by the action of light itself. In this sense, the mediated rechannelling of the origins of the reproduced image is exemplified. Not only does Moholy-Nagy examine and aesthetically mould the sensory nature of recorded filmic data as entirely dependent upon light, but he offers a metaphorical clarification of the status of all reproduced imagery: a visual echo, or shadow, of an original object or event. Crucial to this conception is the realisation that all shadows not only convey information about the object they silhouette, but also the surfaces upon which the shadow falls, and the light source which projects them.

Film itself, thus, is a modifying medium of representation which reconfigures as well as reproduces. In the final frames of Moholy-Nagy's *Lichtspiel: Schwarz-Weiss-Grau*, the inverted complex luminant imagery subsides into a glowing surface of unmodulated light. Upon this surface, Moholy-Nagy's attention seems to linger as he

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[33] Ibid, p 4.

affirms to the viewer the materiality of the corporeal film medium. The preceding illusory dimensionality and elusive engulfing orientations of light and spatiality are eclipsed by the single-dimensional fact of the celluloid through which the projector light beams. The film-strip itself is entirely dependent, for the actuation of imagery, upon the vital source power of light.

III. COGNITIVE CHROMATICS: COLOUR

Immense importance is attached to our perception of colour. It is of key significance in visual aesthetics and has a profound impact upon emotional responsiveness. Colour, therefore, is a particularly crucial element in the understanding of visual perception and expression. There is an extensive history of analyses pertaining to the perception of colour, and this extensive history reflects a particularly diverse range of theories upon the subject. Perhaps the earliest systematic study of colour perception can be found in Isaac Newton's eminent work entitled *Opticks* (1704). Newton made it clear that white light is composed of the spectrum of colours, and the subsequent discovery of the wave theory of light showed that each colour corresponds to a certain frequency. This introduces the complex question of how different neural responses for different frequencies are perceived. Frequencies of radiation in the visible spectrum are exceptionally high and are, in fact, much higher than the nervous system can immediately follow. This question was first given close consideration by Thomas Young (1773-1829), the British physicist and physician, who delineated the initial colour theory which was subsequently developed quite extensively by the German physiologist Hermann von Helmholtz (1821-1894).

Young considered that if sensory receptors were sensitive to every possible separable colour, over 200 separable receptors would be required. Receptors, in physiology, are specialised sites which, when activated, trigger a specific cellular response. However, such a large quantity of colour receptors would appear to be excessive due to the fact that it is almost possible to see as well in coloured light as it is in white light. Young's conclusion, then, was that there must only be a fairly restricted range

of colour-responsive receptors. This restricted range, he claimed, comprised 'principal colours' of red, green, and violet. The concept of 'principal colours' represents the crux of colour theory, and this idea that the full range of colour perception can be created by merely a few 'principal' colours is upheld by the simple fact that colours can be mixed.

At this point, it is important to clarify what is meant by colour mixing. By mixing blue and yellow paint it is possible to produce green, however, the blending of colour pigment is very different to the blending of coloured light. The mixing of coloured light may be produced, for example, by filters. Yellow can be produced by blending red light with green light. Young proposed that yellow must always be made visible through the effective mixing of red and green, adding that there is no separate yellow-sensitive receptor, but rather two sets of red and green sensitive receptors respectively which, when in combination, produce a yellow sensation. It is this question of the perception of yellow which has generated the greatest controversy in colour theory. Perhaps much of the confusion surrounding the perception of yellow derives from its considerable symbolic implications embedded in cultural and mythical convention. Monochromatic light is frequently regarded as having a tendency toward the yellow area of the spectrum. Sunlight, for example, despite being composed of white light, is often represented or described as yellow light, not only as the result of filtration, but also of cultural convention. It seems generally true of all perceptions, that simple sensations do not necessarily reflect any simplicity in the neural foundation of sensation.

The colour theory conceived by Young, and subsequently developed by Helmholtz, then, is that there are three colour sensitive forms of receptor which are respectively responsive to red, green, and violet (sometimes referred to more simply as blue), and that all visible colours are perceived by the mixture of signals from the three systems. Even in physiological terms, therefore, vision can be considered to impose a perceptual structure on the chromatic material which it apprehends.

Colours can be described as an element of visible light perceived according to the light's wavelength. Consequently, it is measurable. The longest wavelengths cross the colour spectrum toward the shortest wavelengths in the following sequence: red, orange, yellow, green, blue, indigo, and violet. These represent the main hues which exist within the framework and interaction of the 'principal colours'. Colour cinematography is thus viable as a result of the phenomenon of combining colours to create further colours.

However, colour perception and expression is capable of considerable, and nuanced, complexity which can transcend the parameters of physiological experimentation and definition. Edwin Land, the American inventor and physicist, probably best known for his invention of the 'Polaroid Land Camera' in 1947, has explored and eloquently demonstrated that the perception of colour extends well beyond the straightforward processes of colour mixture. Land emphasised the perceptual significance conferred upon colour through processes of experience, convention, and interpretation. He repeated Young's colour mixture experiments not simply by using expanses of light, but by using photographic transparencies. Colour film is nothing more than a

complex spatial formation of three coloured filters, but this is apparently capable of producing, for example, gold, silver, and brown, which Young had previously been unable to produce through colour mixture. The reason for this would appear to be that when the three lights form complex patterns, particularly representational images of objects, a greater richness and diversity of colour information can be communicated.

Consequently, there is no simplistic definitive account of the processes of colour perception. Colour is dependent not only upon intensity and wavelength stimulus, but also upon the contrasts, juxtapositions, and patterns of intensity between certain areas, and the psychological interpretations of these patterns as recognisable representational images of objects or forms. Belief, expectation, or knowledge about colours and their properties play an important part in their expressive powers. For example, it may well be that everyday objects such as oranges and lemons are perceived as having a more vivid naturalistic colour when they are recognised as such. It seems clear, therefore, that highly sophisticated additions are generated by the mind through comparison, as colour sensations are formalised and arranged into perceptions of objects. The preconceptions, projections, and predictions about colour, derived from limited data, are vital elements in the functioning of the mind's eye, and perceptual processes of sight sensation.

Colour is a phenomenon with its own structures, properties, and expressive qualities, which are all linked to symbolic expression of human experience. In our common experiences, colour has the ability to induce arousal, disturbance, entrancement,

intrigue, and relaxation. Colour can symbolise and express thoughts and emotions. Colour can summon distant memories and experiences. Colour is also known to be capable of activating sensory cross-modalities, known as chromaesthesia, in which it may be associated with particular sensations such as, for example, sound. The relationship of colour and sound was particularly important in the work of the Swiss painter Paul Klee (1879-1940). Colour is firmly embedded in culturally shared concepts and symbols,[1] yet it can also be highly idiosyncratic and multi-accentual.

The pioneering Russian abstract painter Wassily Kandinsky (1866-1944) compiled influential theoretical writings on colour, from a penetrative psycho-philosophical perspective. He propounded the concept of a certain order and structure based on the inherent qualities of colour which has implications for the regulation of relationships between colours. Kandinsky indicates methods of colour grouping, such as by light and dark, or warm and cool. These two particular groupings offer four subsequent possibilities of colour combination and contrast: warm-light; warm-dark; cool-light; and cool-dark. The colour theories of Kandinsky propose a qualitative delineation of the innate expressive qualities and nature of individual colours. These qualities are explored in his book entitled *Concerning the Spiritual in Art*, and involve, here in abbreviated form, the following processes of seeing and feeling colour. At one pole of the circular sequential arrangement of colour, known as the 'Kandinsky Circle', is yellow, a warm colour which is described as possessing an innate tendency toward amplification and dilation, which may also be perceived as aggressively expansionist. At the opposite pole of the circle is blue, a cool colour

[1] Jung, Carl Gustav, *Man and his Symbols*. (London: Picador, 1978).

with the tendency toward withdrawal and distance. In this sense, Kandinsky describes yellow as "concentric", and blue as "excentric".[2] Blue may also be endowed with profoundly spiritual or divine qualities but can, by contrast, represent hesitance or imprecision. Red is intensely warm and powerful, although this power is described as self-contained. It does not dilate to the same extent as yellow, but generates a vivid variety of tonal array. Kandinsky regards white and black as outstanding contrasting colours, despite being considered by many as non-chromatic, which are respectively symbolic of silence, with black representing ultimate silence. White symbolises purity, spirituality, and in certain cultures, mourning. Black is symbolic of grief and, more commonly than white, of mourning. It also symbolises night, depression, and a sense of profundity. The interaction of white and black results in tones of grey. Grey may be expressive of containment, reservation, or formality. Green is described as having the quality of refreshment, but also has tendencies towards the soporific. Orange is an outwardly warm colour, which seems to make forceful approaches to the viewer. It may also appear shrill to the extent of seeming inimical. Violet can be a colour expressive of hostility. This is particularly so in the case of violet hues which tend toward red. Where violet has a cooler hue leaning toward blue, a softer colour results with more positive qualities. For this reason, violet often has rather ambiguous colour symbolisms. Finally, according to Kandinsky's colour theory, brown may express revulsion or regression. It may also, however, convey an earthliness which can seem protectively corporeal.[3]

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[2] Kandinsky, Wassily, *Concerning the Spiritual in Art.* (New York: Dover, 1977), p 36.
[3] Ibid, pp 36-41.

In traditional academic art theory, colour is often subject to harmonic expression through aesthetic organisation determining colour contrast, relations, and subsequent effects. The preceding sections on colour qualities allude to the existence of a relationship between colour and emotion. Indeed, beyond the aesthetic basis for this relationship, attempts have also been made to establish a scientific basis for the relationship. The Swiss psychiatrist Hermann Rorschach (1884-1922) developed a foundation for an empirically-based relationship between colour and emotion when he asserted that colour responses in the famous 'Rorschach Test' represented total affective responsiveness. The administration of the Rorschach Test consisted of a structured interview using a series of ten standardised, bilaterally symmetrical inkblots. Five of the inkblots were achromatic, two contained some colour, and the other three were in various colours. Each blot was presented to a subject, who was then requested to freely state what could be seen either in each inkblot as a whole, or a certain area of an inkblot. Results from the Rorschach Test suggest that responses to colour are reflective of emotional responsiveness of the subject.

The expressive powers of colour, therefore, may be considered as part of inner experiences condensed to their essential features by the phenomenological device of intuiting prior to visualisation. These inner experiences are intensive because all mental forces are involved in the process of experiencing. The structures of these cognitive chromatic components are similar to the structures of inner experiences visually expressed. Furthermore, each of these active mental components corresponds to a particular chromatic component more closely than other components. This is particularly so in the indissolubly integrated cases of emotive

chromatic forces and cognitive chromatic forces. In *Phenomenology of Perception*, Maurice Merleau-Ponty theorises this process of cognitive chromatic integration as perceptually 'inhabiting' colour itself:

> Every colour as a *quale* is therefore mediated by a colour function, and becomes determinate in relation to a level which is variable. The level is laid down, and with it all the colour values dependent upon it, as soon as we begin to live in the prevailing atmosphere and re-allot to objects the colours of the spectrum in accordance with the requirements of this basic convention. Taking up our abode in a certain setting of colour, with the transposition which it entails, is a bodily operation, and I cannot effect it otherwise than by *entering into* the new atmosphere, because my body is my general power of inhabiting all the environments which the world contains, the key to all those transpositions and equivalences which keep it constant.[4]

Walther Ruttmann's *Lichtspiel Opus 1* (1919/21), as we have seen, confirms the crucial intrinsic nature of light in film, yet additionally exemplifies the means by which colour perceptually 'inhabits' light. As literally a 'play of light', the film equally expresses its specific visual sensations through the light intensities of colour. In May 1921, Herbert Ihering wrote of the film's effects:

> This joint effort of the painter Walther Ruttmann and the musician Max Butting is one of the most interesting that I have seen in the world of film. It means nothing less than the rendering of light and colour as sound and the transformation of music into visible motion. Coloured triangles do battle with swelling and shrinking coloured circles . . . A motion play of rare purity.[5]

Although *Lichtspiel Opus 1* commences in a monochromatic configuration, with white spheres of light swelling upwards into a black background, within a few

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[4] Merleau-Ponty, Maurice, *Phenomenology of Perception.* (London: Routledge, 1962), p 311.
[5] Ihering, Herbert, *Berliner Börsen-Courier*, May 6, 1921. Quoted in Walter Schobert, *The German Avant-Garde Film of the 1920s.* (Munich: Goethe-Institut, 1989), p 80.

seconds Ruttmann introduces colour expression into the work. The bright white spheres of light become imbued with a cool wash of pale blue light which elevates the prior monochrome palette to a further level of sensory effect. This blue colouring of the light spheres intensifies the sensation of dimensionality as the surface quality of the white light is rendered more ethereal and nuanced, receding into a distanced realm of chromatic vibrancy and illusory space. The blue on black colour combination is then momentarily interrupted by a brief series of pale red shapes which dart across the screen: initially a variety of small circular forms, then a series of curving swirls. The blue spheres then reappear, before further swirls of red curve across the screen in the other direction. Here Ruttmann has created a sense of chromatic contrast and conflict. This colour conflict, between the warmth of red and the cool of blue, parallels the other forms of visual conflict which are developing. These include the conflicting directions of movement, the conflicting scales of size and shape, as well as the conflicting rhythms of speed and pace.

Ruttmann continues this theme of visual conflict, exacerbated by the dramatic confrontation of opposing ends of the chromatic spectrum, before varying the colour arrangement in a subtle manner. The extremities of blue and red are replaced by the more moderate relationship of a soft orange and a warmer violet colour. These two colours continue to operate in a contrasting oscillating style, but their colour alteration parallels a change in the rhythm and shape of the forms which move across the screen. Ruttmann gradually alters the orange hue to become a bright pulsating magenta, the urgency of which signals an overall variation of the visual configuration of the film. The conflictual arrangement of each colour quality filling the screen in

an alternating pattern is then succeeded by a dual chromatic pattern in which both the bright magenta shapes curl and contort across a background suffused with intense light blue colouring. At this point, for the first time in the film, the entire screen space is awash with colour. The viewer's gaze is saturated with a chromatic flourish.

The magenta and blue continue to weave a sensory pattern of coloured motion, as the pale blue backing is modulated in depth and intensity with a deeper hue toward the right of the screen and a lighter tone toward the left. The effect of this chromatic intonation is to give the screen surface a partial illusion of spatial depth and recession, and offering the viewer a more diverse range of associations with the palette of colour. This fresh chromatic sensation of spatiality is then bracketed by the immediate return of the black backing upon which the pale blue angular forms continue to move in a series of symmetrical surges from each side of the screen toward the surface. This momentary restriction of the colour range exemplifies the chromatic intensity of the following section of the film which introduces an extraordinary array of colour intensities, modulations, and softly blended harmonies. The magenta and deep blue once again suffuse the screen, but this time they are no longer separated by linear shapes of formal division. Now the colour blends and bleeds into a saturating array of colour modulation and nuance. As the varied depths of magenta melt into the tonalities of blue, so a terracotta orange colour swirls across the screen in the form of a suggested partial sphere, sweeping into and out of each area of colour. This revitalised palette of colour depth and diversity then cuts into a haunting heated intensity of red and orange forms upon a deep black backing. This colour configuration combines various depths of orange and red, overlapping and

interacting across the dark surroundings, occasionally surging outward to fill the screen with intense flashes of intensely hot colour. The oranges and reds then melt into the dynamic lurid magenta, as the colour variation simultaneously signals an alteration of shape structure and directional rhythm. As this bright magenta shape darts across the screen, so a deep partial wash of glowing red beams upward from the lower right edge of the screen adding a further chromatic variation to the imagery.

The related contrast of a deep red and a bright magenta generates a pattern of chromatic relativity which exemplifies Ruttmann's aim of developing the ideas of pure visual expression through contrast, conflict, and interaction of imagery. The colour intensity which is applied to the moving shapes of the film creates an elevated sense of plastic dimensionality, as the subtle variations of chromaticity mould the forms into perceptual illusions of structural density or spatiality. Of *Lichtspiel Opus 1*, Leonhard Adelt observes:

> The gentle hues of the planes - sky blue, dusk red, dawn green - playing according to rhythmical laws, are changing into geometrical forms, uni-coloured and two-dimensional:' angles, squares, circles, wavy lines. Fiery tongues, stinging, the sun's disk glowing fiery red, then disappearing . . . The concepts of sound painting or tone colour seemed literally to fulfil their meaning; content and character of the musical piece express themselves, silently moving in the forms and colours of the continuous motion picture.[6]

An extended section of the patterns of warm red and magenta in the film is eventually bracketed by a brief surge of pale blue colour upon a swelling spherical form which rises into and then falls away from the centre of the screen. This acts as

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[6] Adelt, Leonhard, 'The Filmed Symphony' *Berliner Tagblatt*, April 21, 1921. Quoted in R Russett and C Starr, *Experimental Animation: Origins of a New Art*. (New York: Da Capo, 1976), p 41.

a visual chromatic partition which sections off that sequence of the film prior to a moment of total darkness during which the viewer is deprived of any visual sensory data of variation or colour. This structural phase of 'empty' screen time is then, after due course, sliced apart by an angular form of bright blue which thrusts both upward and downward from top and bottom of the screen into the black backing. This dramatic collision of colour with darkness and achromaticity becomes a further duality of sharply delineated strictures upon territory. The black surroundings are then, however, imbued with a gentle glow of blue light which overlays the black and forms a chromatic pattern of related harmonies of blue upon blue.

The sequence of blue on black and blue on blue becomes curtailed by an alteration of formal arrangements. The predominant angularity of the blue forms is replaced by the gentle curvilinear shapes of a warmly soft orange glow. Rounded and curvaceous, these orange forms swirl carefully around the screen space and are soon blended with other spheroid forms of a magenta hue. At this point, Ruttmann once again suffuses the screen with a sensational saturation of blended colours, as the background glows both orange and red with related warm colour-forms rotating across the surface. The pattern of structural conflict is introduced as the wash of hot colours is interrupted rhythmically and repeatedly by the blue on black harsh angles of staccato movement. An oscillating sensation of chromatic alteration then begins and shifts the viewer recurrently from one extremity of the colour spectrum to the other, enforcing a powerful process of sensory rhythm.

A further moment of total blackness brackets the next phase of the work. Upon a brightly modulated backing of intense blue, a powerful orange column of colour swings from side to side across the screen. As it does so, the colouring of this column alters in depth and intensity. This precedes Ruttmann's most elaborate colour configuration in the film, in which a complex array of various shapes of differing colours move around the screen: an orange shape toward the lower area moves below an oscillating red sphere surrounded by a circle of light blue upon a dark blue background. This configuration alters and distorts into a magenta glow upon a purple backing, before the dramatic introduction of a new and previously unseen colour flourishes onto the screen. A bright fresh green colour bends across the pale blue surrounding, bringing a strategically placed moment of diverting disruption. This colour combination is entirely at odds with all the preceding chromatic configurations, and elevates the colour sensation of the film to a surprising further level. The film returns to a variety of red and orange forms upon a pale blue backing, before an extraordinary colour crescendo concludes the work: A very painterly wash of grainy modulated purple and magenta extends across the screen, almost obscuring the limited areas of pale blue at the periphery, as a bright orange spheroid glow of colour expands like a lurid colour-liquid upward into the centre of the screen creating a remarkable layering of key colours from the core of the film's chromatic configuration. This flourish of warmth fades from the screen to leave the pale flat wash of soft light blue.

In this film, Walther Ruttmann has developed a complex structural configuration of chromatic conflict, contrast and relationship, all of which have assisted in the

generation of a diverse series of pure visual sensory effects. *Lichtspiel Opus 1* is a profound demonstration of Ruttmann's mastery of the art of pure visual rhythm, in this case crucially accentuated and exemplified by the strategic application of specific aesthetic arrangements of colour. Leonhard Adelt continues:

> The painter Ruttmann, who sees music as a painterly movement of form, just as other people might perceive it as an emotional experience or a law of harmony, technically continues the tradition of the animated film in order to find an immediate expression for his vision. His technical production procedure is very painstaking: with seeming microscopic exactness, the painter must produce a series of many thousands of drawings and then colour them. This continuing pictorial sequence, like music - that is the bridging element between the two - is basically an element of eurhythmy, moving form whose rhythm fulfils itself according to the laws of harmony of the presented symphony.[7]

Adelt's response to Ruttmann's early film eloquently describes aspects of the fusion of key elements of visual experience which characterised his work. His processes of 'bridging' elements through 'eurhythmy' connect appositely with Merleau-Ponty's concepts about the perceptual world as a fused field of vision. Merleau-Ponty states:

> Suppose we construct, by the use of optics and geometry, that bit of the world which can at any moment throw its image on our retina. Everything outside its perimeter, since it does not reflect upon any sensitive area, no more affects our vision than does light falling on our closed eyes. We ought, then, to perceive a segment of the world precisely delimited, surrounded by a zone of blackness, packed full of qualities with no interval between them, held together by definite relationships of size similar to those lying on the retina. The fact is that experience offers nothing like this, and we shall never, using the world as our starting point, understand what a *field of vision* is.[8]

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[7] Ibid, p 42.
[8] Merleau-Ponty, Maurice, *Phenomenology of Perception.* (London: Routledge, 1962), p 5.

Merleau-Ponty develops his intriguing scrutiny of the authentic status of apparent visible knowledge by exploring the nature of the senses as sites of primary perceptual influence. In so doing, he utilises colour as a key tool for the extrapolation of the profound influence of sensory experience in establishing perceptual coherence of apprehension. He continues:

> A being capable of sense-experience - in the sense of coinciding absolutely with an impression or a quality - could have no other mode of knowing. That a quality, an area of red should signify something, that it should be, for example, seen as a patch on a background, means that the red is not this warm colour which I feel and live in and lose myself in, but that it announces something else which it does not include, that it exercises a cognitive function, and that its parts together make up a whole to which each is related without leaving its place. Henceforth the red is no longer merely there, it represents something for me, and what it represents is not possessed as a 'real part' of my perception, but only aimed at as an 'intentional part'. My gaze does not merge with the outline or the patch as it does with the redness considered concretely: it ranges over and dominates them . . . seeing a figure can be only simultaneously experiencing all the atomic sensations which go to form it.[9]

A fascinating film-work which exemplifies the optical phenomena of such a simultaneous fusion of combined sensations through colour configurations can be found in *Kreise* (1933) by Oskar Fischinger. This film proudly announces its glorious colour status with the acknowledgement at the start of the use of 'GasparColor', a process of early colour film photography. The film opens impressively with a vast receding series of circles within circles, confirming the subject matter of the title. These circles are seen in a series of reds and magentas, suggesting that although shapes are the key concern of the work, colour is certainly a

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[9] Ibid, pp 13-14.

vital factor in the means by which Fischinger seeks to express the power of his visionary images.

Across the red concentric circles which fill the screen, a variety of further detached and rapidly moving circles swoop and surge. These smaller mobile circles are of a bright, vibrant variety of colours which stand out prominently against the deeper background hues. These circles of yellow and pink flash across the screen with extraordinary speed, and then begin to spin in a circular pattern as the deeper red circles to the rear fade from view. Fischinger uses colour to guide the attention of the viewer. Brighter colours flash across the frame, pulling the viewer's gaze away from the deeper, darker colours of the surrounding areas. As the swirling yellow shapes spin around creating a circular glow in their wake, a profusion of colour clusters beam forward into focus. These colour clusters are bright yellow, red, and deep purple. The colour combination imposes an implied depth perception onto the composition, as the sharp yellow shapes appear to project most powerfully, and the other deeper colours seem to be restrained at a more distant depth.

Not only is Fischinger using colour here to guide the movement of the eye, but he also uses it to generate perceptual recession and projection. The deep red colours of the backing configuration of circles return, and vary in colour intensity as the relationship between foreground and background is explored through the indexical connections of colour. Red hues of differing intensities are superimposed to create harmonies of depth and tone, whilst detached bright yellow hues serve to fracture the unity of the configuration of colour and create a dynamic conflictual tension of

chromatic awareness. Fischinger alters the deep reds of the background circles to appear as bright yellows. Upon the surface of this yellow array, a series of orange and red smaller circles dart around. In this way, Fischinger has structurally reversed the perceptual predominance of the imagery by inverting the colour balance. Whereas deep colours were previously seen in the background, behind moving brighter colours, the deeper colours now begin to move across a brighter backing. This serves as a chromatic counterpoint, around which the viewer's sensory perceptions may be manipulated.

The immanent effect of reds and oranges to have an expanding and projecting effect in colour responses is utilised powerfully by Fischinger as he uses these colours for the surging shapes which seem to leap out from the picture surface. As a series of circles appear to sweep alternately out, and then in, to the deep background, the eye is coaxed to connect with the brighter colours whilst still retaining an awareness of other subtler colour movement. As the coloured circles continue to surge forward, their contrasting colours generate a heightened awareness of depth recession and overlapping form. This is most effectively achieved by the brightness of yellow being laid over the subtle warmth of deep purple. This process is brought to a particularly powerful and profound conclusion as the yellow circles begin to envelop the purple circles to create the visual suggestion of a spiral shaped tunnel of chromatic recession. The following phase of the film operates very similarly to the opening phase, but replaces the deep red backing with a bright blue dominant backing colour. This appears as smaller blue shapes moving upon a slightly deeper blue backdrop, or blues and greens spinning in unison to form circular patterns of

colour contrast. Again, Fischinger congests the screen with an abundance of colour clusters, yet this time in another colour combination. Now we are confronted by the surging projection of blues and greens of various chromatic intensities. These cooler blue and green colours, although still presented with intense structural regularity, create a greater sense of spatial dimensionality and depth. These effects correspond with the experience, in Martin Heidegger's terms, of the "being-present-at-hand of several subjects."[10]

The screen frame of Kreise seems to become less aggressive in its outpouring of rapid and convoluted visual information, as the viewer's senses are somewhat refreshed by the cooler hues. However, Fischinger reintroduces the powerfully intense red circles to the rhythmically evolving pattern, and these reds conflict dramatically with the green colours above them. Red and green, presented with such vibrant dynamism have a jarring effect upon the senses, and a sharp chromatic resonance develops at this stage as a result of this colour clash. Rapid flashes of red and green formations enhance this dramatic optical attack of colour, and parallel a growing friction in this phase of the work.

Fischinger cleverly alters the colour configuration in such a way that chromatic intensity variously either fills the screen, or barely flickers across it. By this process, a rhythmic structure of colour meaning is generated and perceived by the viewer: At one stage, a thin pale blue circle expands with a green centre, before a vast intense red circle surges inward from the edges of the screen to fill the frame. The dynamic

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[10] Heidegger, Martin, *Being and Time*. (Oxford: Blackwell, 1962), p 158.

oscillations of visual effect, created through movement and scale, as well as inward and outward directionality, are always enhanced and enforced by parallel relationships of colour contrast. Eventually, the screen surface turns a brilliant bright white, and red and yellow circles swoop forward with an entirely new level of dynamism and visual vigour as a direct result of the dramatic introduction of the unexpected colour combination. This new colour combination lifts the colour intensity to a higher level of clarity and perceptual expansiveness, in direct contrast to the deeper hues of the foregoing phases. Indeed, the colours on the white backing now assume a paler, less focused status as their pastel hues indicate a section of lighter pace and looser rhythm. Yet this paler wash of colour arrangement also allows for a particularly ebullient crescendo of visual data, as the circles build into their most convoluted series of patterns and the entire palette of chromatic levels are presented in dramatic succession. This seems to cinematically enforce the sensory statement by Merleau-Ponty that "colour in living perception is a way into the thing."[11]

Although the entirety of *Kreise* is remarkable for its rapid rhythmic intensity, it is the clever variation of colour combination which allows for the transcendental visual sensation of the concluding phase. Fischinger uses *Kreise* to lucidly explore the powerful network of relationships which exist between colour intensities and hues. Indeed, it is precisely the perceptual powers of colour contrast which have allowed this symphonic scrutiny of the circle to gain such a potent pattern of pure visual sensation and directly receptive expressivity.

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[11] Merleau-Ponty, Maurice, *Phenomenology of Perception.* (London: Routledge, 1962), p 305.

Fischinger continued his intensive chromatic experimentation in another 'GasparColor' film which he made during 1934-35. The colour system developed by the Hungarian Béla Gaspar allowed Fischinger to indulge his spectral imagination with characteristic flair and dynamism in *Komposition in Blau.* This film commences, as the title suggests, with a scene saturated in tones purely of blue. The intonation of this blue indicates a clear sense of spatial depth and planar surface. Hans Scheugl and Ernst Schmidt explain:

> In *Komposition in Blau* Fischinger took the next step in his development of an abstract pictorial idiom. He met the precedents of his black and white films by using three-dimensional geometric solids. Examples include red cubes which move, grow, and multiply on a blue surface, columns which extend on high, and cubes which revolve.[12]

Toward the bottom of the screen in the film's opening scene, a lighter area of blue contrasts with an area of deeper blue toward the central and upper areas. The suggestion of planar surfaces is confirmed as a bright red cube of colour passes across the scene in a left to right direction. There is a clear sense of spatiality in the varied range of chromatic intonation. A deep blue backing surface contrasts with the lighter blue ground plane, and within this space a variety of bright red cube forms begin to move and rise. Fischinger's intuitive understanding of the powers of colour contrast are clear in his deployment of the dramatic visionary conflict of deep blue and bright red. As the red cube shapes surge forward, their perceptual impact and spatial projection is exemplified by their accentuated chromatic detachment from the

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[12] Scheugl, Hans and Schmidt, Ernst, *Eine Subgeschichte des Films.* (Frankfurt, 1974), p 286. Quoted in Walter Schobert, p 44.

deeply distanced effect of the blue surroundings. The single red cube divides into two red cubes, which then divide into three red cubes, all of which repeatedly surge forwards and upwards as if to assault the senses of the viewer with their dramatic dimensional mobility. Again, the cubes divide and subdivide until a profusion of red cubes thrust outwards from the shaded depths of the immobile blue backing region. Fischinger develops a carefully choreographed pattern of strictly symmetrical movement as these dynamic and vibrant red cubes project with a disembodied chromatic power across the screen, upwards into the air and forwards, as if propelled beyond the perceptual containment of the screen surface.

This pattern of chromatic interaction is then blended with a variety of other colours and structural strategies of depth and direction. Fischinger continues the concept of geometric subdivision in a cyclical manner, but now utilises vertical columns of colour planes which fold inwardly in turn as they reveal a variety of alternating colours. Initially, surfaces of white fold across the blue screen, then surfaces of yellow, and surfaces of pale green. This gradual build up of colour intensities then incorporates warmer hues of orange as the sensation of hypnotic depth is repeatedly magnified by the contrasts of chromatic values. A tunnel formation of colour controlled depth then fans outward and flattens into a horizontal array of colour surfaces which stand side by side in a neatly interchanging arrangement of blues, whites, yellows, oranges, and greens. Repeatedly, the colour columns move across and into the frame, alternating from left to right and vice versa, until an arrangement of clear colour contrast is configured momentarily upon the screen. This structured chromatic configuration is then dissolved again into the saturating totality of pure

deep blue. This blue defies the spatial clarity of the geometric patterns of colour motion which preceded it, and serves as a type of atmospheric void into which Fischinger can pour a variety of colour communications. The conflictual theme of the bright red cuboid forms upon the flat blue backing commences further choreographed movement. Now the red shapes swell and oscillate from the right side of the screen before spreading neatly into a thin regular line across the lower central portion of the frame. Eventually, these red rising cuboids are superseded by bright yellow forms which rise in the foreground. Furthermore, orange shapes begin to rise in the middle ground as Fischinger creates a clear spatial perception of depth recession purely with the contrasts of colour. Upon the deep blue receding background, the red cubes surge forward, and further forward still are the orange cubes, with the bright yellow cubes at the very forefront, flooding the viewer's depth perception.

These cuboid forms and rectilinear symmetrical patterns of movement are then replaced by a stylistic alteration in which curvaceous colour forms curl and sweep across the frame. Fischinger continues to accentuate depth perception with the use of colour contrast. A series of yellow spheroid shapes move in the foreground as a green shape swells and recedes in the hinterground. The colour values alter and exchange as the sense of depth becomes subverted by the interplay of chromatic location. The screen is split into a series of colour strips which also have the effect of rendering the flat screen into a spatial dimensionality of chromatic depth. Cool colours of green and blue predominate toward the top and bottom peripheral areas of the screen, whilst strips of hot yellow, orange and red congregate in the centre.

Although a simple palette of chromatic variation, the scene draws the eye relentlessly to its centre, to the bright warmth of the middle colours. Rhythmically, Fischinger alters these strips of colour in a repetitive style which guides the eye upwards across the screen as a perceptual ripple-effect is achieved by varying the location of each individual colour strip in the pattern. These diverse colour strips then become static as the screen switches into a uniform sheet of pure pale yellow which saturates the entire field of vision. Onto this flat surface of yellow, a diverse series of small, convoluted colour variants begin to propel and weave. Initially, cool blues and greens dart across the yellow frame, occasionally interspersed with flashes of hot red. Fischinger manipulates a grid-like arrangement of colour cubes which alter and modulate in a variety of perceptual directions, leading the eye diagonally over the screen from left to right, then right to left. These cuboid colour grids then take on a triangular shape which seems to recede in renaissance perspectival style toward a distant horizon toward the top of the screen.

Fischinger continues to modify the rhythm and visual tone of the work by reintroducing the predominance of varied hues of blue in a series of ever-expanding concentric circular shapes of colour within colour. Upon the surface of these pale blue circles of colour, Fischinger superimposed a range of swelling columns of hot red and orange colour. These persistently change in hue and tone to appear at one instance silhouetted and backlit, then aglow with colour. In this way a very rapid dynamic aesthetic of oscillating chromaticity is generated which envelops the gaze of the viewer in a swathe of sweeping shards of pure chromatics.

These shapes and colour values are switched again into a darkened palette of black, dark blue, and paler blue, all of which appear to spin across the screen upon a series of rotating strips of colour surfaces. These colour strips rotate rapidly and the eye is guided upward and then downward over the screen as key central colours move throughout the pattern. Here Fischinger limits the use of warmer colours to the lower region of the frame, yet the effect is always to draw the eye rapidly and intuitively toward the focal colour-point. The complex superimpositions of colour-forms return to rise and fall in an ornate array of ever-changing chromatic predominance. As this colour choreography builds to a crescendo, so the warm colours of red and orange surge repeatedly forward to flood the screen with their expansive projectile energy. A more diverse range of colours is then employed as circles of chromatic form expand and recede with a dimensional pattern which implies a spatial angle and depth. The pattern of pale blue, overlaid with bright reds and oranges returns, and the central theme of dynamically interacting and colliding colour territories is again enforced. A stunning thrust of relentless colour shapes pulsate outwardly from the screen as the most extraordinary expression of chromatic intensity is embodied by a profusion of warmly coloured spheres swoop out of an inky blue background. Finally, a vast red sphere swells forward to entirely consume the screen frame. This totality of hot red concludes the film and marks the point at which the work has fully transformed from the opening scenes of pale blue. This profoundly dynamic optical experience of transformation intersects with the vital phenomenological concept of *transcendence*. For Husserl, the transcendent was a central component of his philosophical doctrines, and he expands the concept thus:

> Here we need a genuine phenomenological description of the transcendent act of empathy. With it, as long as it has been called in question, we require an abstractive suspension of other minds and of all those experiential levels of my world which originate from the belief in other minds . . . I experience my own conscious existence directly and truly as *it itself*.[13]

Komposition in Blau can be regarded as an optical experience of conscious direct existence in its own right. In this film, Fischinger takes the viewer on a dynamic journey through a series of transcendent chromatic transitions. Along the way, a variety of conflicting and contrasting colour patterns are explored until a total transition of colour location is perceptually experienced. This work involves the polarity of colour expression, and asserts the dramatic dynamism within the diverse regions of various colour qualities. Although entitled 'Composition in Blue', this film is precisely about the way in which colour expression derives from the relationships and tensions between different colours, and through such conflicts emerge transcendental chromatic sensations.

One of Fischinger's most extraordinary creative achievements is acknowledged to be the 1947 film *Motion Painting No 1*. This film also depends upon the concepts of transitional evolution and contrast for its generation for visual impact. Yet along with the temporal and kinetic facets of the work, the relational effects of colour composition are also integral to the film. *Motion Painting No 1* commences with the written statement that the work is "Oil-Colour on Glass: 18 x 24". It is an interesting and curious reminder of the painterly origins of many early avant-garde film works, and directs attention to the particularly materialist approach of the avant-garde to

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[13] Husserl, Edmund, *The Paris Lectures*. Trans P Koestenbaum (Dordrecht: Kluwer, 1998), pp 34-35.

their media. Photographed and painted by Fischinger himself, the artisan qualities of the piece are immediately clear. William Moritz says of the film:

> Volumes could be written about this film which stands in length and complexity as Fischinger's major work. It is perhaps the only one of his films which is truly and completely (or purely) abstract (or absolute). Its images are actors in a complex being which modulates and transforms itself before our eyes, an object and an experience at the same time, something we must feel and contemplate, and meditate through.[14]

Moritz's eloquent assertion of the film's simultaneous perceptual fusion of object and experience, is a profoundly phenomenological concept. Indeed, in this regard Edmund Husserl states:

> The reference to harmonious infinites of further possible experience, starting from each world experience - where "actually existing object" can have sense only as a unit meant and meanable in the nexus of consciousness, a unity that would be given as itself in a perfect experiential evidence - manifestly signifies that an *actual* object belonging to a world or, all the more so, a world itself, is an infinite idea, related to infinities of harmoniously combinable experiences - an idea that is the correlate of the idea of a perfect experiential evidence, a complete synthesis of possible experiences.[15]

The opening image of *Motion Painting No 1* consists of a vibrant expanse of abstract pointillist spots of colour painted upon the glass surface which Fischinger has already built-up prior to shooting the initial frame. The scene ranges from deep dark areas of burnt umber and sienna, to two clusters of hot reds and yellows toward the central region of the frame. This pointillistic handling of colour instantly suggests the transience and evolutionary effects which the film will address. Swiftly, the

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[14] Moritz, William, *Film Culture*, No 60, 1974. Quoted in R Russett and C Starr, *Experimental Animation: Origins of a New Art.* (New York: Da Capo, 1976), p 63.

scene transfigures into a vibrant surge of intense, lurid bright red which overlies a thin expanse of pale blue in the two asymmetrical central regions which a moment earlier were hot reds. In this swift transitional movement, Fischinger has dramatically inverted the colour configuration of the work and remoulded the terms by which the viewer may apprehend the balance of the colour encoding. Rapidly and relentlessly, a series of ever-expanding ethereal clusters of diverse colour swell up across the screen into a repeatedly sub-dividing array of colour groupings. Initially red swells up over blue, then white over red, and yellow over white. In this way, Fischinger elaborates a spectral sense of repeated rebirth of colour vitality.

Colour configurations are used at this stage to suggest the sense of both surface, space, and ground, as the colours blend and mould into various structures of form and balance, expansion and recession. Paler hues contrast with stronger colours to suggest spatial distinction and perceptual depth. This occurs in the case where a gentle glow of yellow oscillates behind the firmly structured columns of harsh red which play across the foreground of the screen surface. Fischinger uses the warmth of certain colours to draw the eye toward specific regions of the screen, and builds colour patterns within other colours to create a layered structuring of colour dominance and contrast. Spirals of red expand across yellow and grey backgrounds as similar spirals of pale blue also expand at the periphery of the frame upon a darker background creating a visual echo and chromatic distinction which uses pure colour as a balancing device for the gradual unravelling of a series of alternating visual focal points. As the red spirals continue to expand, so the general colour balance of

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[15] Husserl, Edmund, *Cartesian Meditations*. Trans D Cairns. (Dordrecht: Kluwer, 1993), p 62.

the screen subtly evolves. The spirals overlap and the intensities of reds and yellows build up and thrust the cooler hues toward the fringes of the frame. As this process develops, a further series of colour spirals begins to appear. These spirals, however, are dark blue and as they develop the sense of lurid warm colour expansion becomes enveloped by an impending darkness. The dark blue shapes enclose the frame, and additionally appear to contribute a shaded layer to the screen surface, increasing the chromatic dimensionality of the filmic space. As the darker colours eventually dominate the entire screen, so a deep blue and emerald green colour balance emerges to subtly raise the chromatic configuration and suggest the continuation of visible structural activity.

Onto this deeply mystical blue, a startlingly dramatic slash of intense, almost fluorescent, red sweeps across the screen and builds a broad and dynamic oval spiral of colour intensity across the centre of the screen surface. Groping limbs of bright red colour twist outward from this colour mass into the outer regions of the frame, and form an orderly array of subdivided circles of bright red. A bright line of yellow then begins to overlay the red, and an interweaving of colour dominance begins a chromatic rhythm of colour contrast. Across the surface of this aggressive intensity of yellow and red, a fragmentary linear array of white and blue lines expand outwardly in a web-like pattern creating a nuanced entanglement of colour spatiality which subverts the prominence of the red rearground. Yet the red and yellow combination continues its struggle for domination as a series of colour squares again begin to cluster onto the screen surface.

The ongoing power balance of colour configuration continues as blue and white squares emerge to assert dominance, and again yellow and red squares reassert their presence. Ultimately, the screen becomes pervaded by the balancing neutrality of pure white. Bordered by a narrow fringe of black, the screen becomes a monochromatic expanse devoid of any colours competing for prevalence. Slowly, Fischinger builds up the suggestion of colour as a series of narrow rectilinear yellow forms trace their way across the whitened surface. At this stage their colour is so pale as to be merely suggestive and hesitantly delicate. As the yellow shapes build up, so they appear to convey a diagrammatic formality and structural coherence. This quality echoes the manner in which Fischinger's overall uses of colour interaction are in themselves quintessentially structural, and displays formal methods of colour contrast to create a diagram of ongoing colour-based directionality of expression.

The yellow diagrammatic lines become steadily more intense. They grow deeper and redder as an overlayering effect suggests spatial recession. As the linear colour pattern relentlessly expands and builds on the screen, so the intensity of colour continues to grow until the chromatic content appears as a solid plasticised mass. With this sense of colour mass, a graduated colour contrasting effect emerges with large swathes of deep red curving across the screen, gradually intoning with lighter yellows, to white at the very edge. The effect of this is to create a sense of tonal shading and surface undulation purely with the regulated combination of colour qualities. These vast swathes of intoned colour are then usurped by the thematic chromatic counterpoint of the cooling blues and greens which are used in a similar

structural style, but which have the effect of rendering the screen into negative image as it inverts the general balance of the chromatic array.

Fischinger's style of applying the colour to the screen at this stage alters dramatically as a large powerful globe of red colour appears in the central area of the screen. This is duly accompanied by a large globe of uniformly green colour, creating a jarring optical conflict of colliding colour contrast. Additionally, a blue globe of colour appears and all three then meld into a tricolour mass which expands over the frame. The entire screen briefly becomes the site of purely primary colours which glow from the screen in a neatly subdivided configuration without any blurred overlapping edges. Suddenly, a dramatic arrow of monochromatic tones sweeps into the screen from right to left, and fully occupies the screen space with the neutrality of grey tones. This powerfully contrasts with the preceding intensity of pure colour. In turn, the grey arrow is itself pierced by an arrow of intense yellow and a further arrow of intense red. As an arrow of deep blue then sweeps over the scene, it becomes apparent that a dramatic multi-directional interaction of colour contrasts is under way. As this develops, the viewer is alternately plunged into a sphere of either pure cold colour, or intensely hot colour. The effect is one of powerful oscillation and perceptual alternation and manipulation.

Eventually, Fischinger fills the screen with a series of coloured spheres which expand outwardly from the centre of the frame, and build to a crescendo which marks the closing phase of *Motion Painting No 1*. The screen fills with a pool of total blackness. Onto this veil appear a series of concentric yellow oval shapes, these

regulated shapes then reappear as red and green forms before a surge of yellow swells to fill the screen in a spiral expansion of colour. A similar spiral of structured black follows to finally close the film. In these closing stages of the film, Fischinger cleverly used colour both in a series of chromatic combinations, and in a series of structural combinations. Indeed, as a symphonic modulation of colour effects, *Motion Painting No 1* appears as a carefully configured, directional evolution of pure colour responsiveness. The film serves as a quintessential demonstration of the way in which colour communicates its perceptual impacts most profoundly through contrast, conflict, and change. In this piece of uniquely painterly film-making, the ideas of perpetual alteration and relentless evolution powerfully highlight the fact that colour may be structured, modified, and codified into a stream of pure chromatic responsiveness through the manner of its relational configuration. William Moritz suggests that *Motion Painting No 1* features "structures of depth and power that collide in the end to form a beautiful, simple, pure mandala".[16] Moritz's use of the term 'mandala' is interesting as it corresponds with the psychoanalyst Carl Gustav Jung's use of it "to designate a structure of . . . symbolic representation of the 'nuclear atom' of the human psyche".[17] Moritz goes on to describe the film as a connective structure of expansion:

> Out of this develop connections first in the form of slow, logical enlargements of basic kernels, then by the direct connection of the kernels themselves. Then are added large blocks of material to form a new field of action - the process of education - on which logical construction takes place - cogitation and contemplation - which grows very gradually into more and more powerful and beautiful gestures - creativity and transcendent meditation.[18]

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[16] Moritz, William, Quoted in R Russett and C Starr, p 63.
[17] Jung, Carl Gustav, *Man and his Symbols*. (London: Picador, 1978), p 230.
[18] Moritz, William, Quoted in R Russett and C Starr, p 64.

For Moritz, then, the experience of *Motion Painting No 1* is one of structured expansion which leads to 'transcendent meditation' through a series of connections. Edmund Husserl, correspondingly, has described connections and associations as being integral to his transcendental theories of phenomenology. He states:

> The universal principle . . . for the constitution of all objectivities given completely prior to the products of activity, bears the title *association* . . . Association is a fundamental concept belonging to transcendental phenomenology . . . From phenomenology, which was very late in finding avenues to the exploration of association, this concept receives a completely new aspect, an essentially new delineation, with new fundamental forms. Here belongs, for example, sensuous configuration in co-existence and in succession.[19]

Indeed, precisely such a notion of sensuous configuration in succession, comprises the basis of yet another fascinating early colour abstract film. The film is by Len Lye and entitled *Colour Box* (1935). In 1947, Alberto Cavalcanti wrote:

> *Colour Box* is a very important film, not only because of its successful use of colour, but also because it is a demonstration of the rhythm created on the screen by the succession of lines composing each individual frame or group of frames.[20]

Colour Box was Len Lye's first experiment in painting with colour directly onto celluloid. For its initial release in 1935, the material was processed in 'DufayColor' which gave the work rather soft greenish blues and muted pinks. John Grierson acquired the film for the General Post Office and reissued it in 1937 with the addition of the message: "Cheaper parcel post". The British Film Institute recently reissued a

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[19] Husserl, Edmund, *Cartesian Meditations*, p 80.

print of the film which uses the Eastmancolor process. This version more accurately reveals the true chromatic vibrancy of Lye's original work.

Colour Box immediately announces the dynamism of the use of colour in the work, with a profusion of strong colours which also assert the primacy of the celluloid as the central material surface giving meaning to the imagery and its manipulation. The luminous intensity of the colours themselves is particularly apparent. The effect of the colour on the celluloid surface gives a rather translucent undulating quality to the work and its chromatic arrangements. A series of almost random circles, spots, lines, and curves weave across and around the screen in a mass of dynamic chromatic activity which seems to envelop the viewer in its perspectival proximity and dimensional extremity. There is a sensation of being tightly compressed against the screen surface as the colours meet the eye in an intense intimacy. Any sense of spatial depth is almost entirely dependent upon nuances of colour intonation for the merest hint of spatial recession or dimensionality. The rapidity of the transitions between shapes, forms, and arrangement is such that the key facet of conscious evolution in the work for the viewer is the configuration of colour. The film opens with an inky suggestion of deep blue, overlaid with a bright spidery line of white which runs in a strongly vertical direction. This is followed by a predominant profusion of bright green, again overlaid by white lines and the slight suggestion of undulating tonal depth. Lye weaves a clever pattern of colour transition as the green spills into a rich purple and mauve splash of intoned colour, beneath which flicker fragments of lurid pink, interspersed by white bisecting linearity. The broad

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[20] Cavalcanti, Alberto, *Sight and Sound*, Vol 16, 1964. Quoted in D Curtis, *Experimental Cinema.* (London: Studio Vista, 1971), p 36.

arrangements of pure dominant colour are then detailed by more complex patterns of linear colour configuration. A red background is pierced by an array of bright yellow curving lines, as a threatening mass of deep green spreads from the right in both a structural and chromatic counterpoint.

Lye uses a structural device of intersecting his dominant colours with momentary flashes of contrast colour. In this manner, he lays a wash of red across the screen, yet punctuates it with momentary flickers of pink and purple. By so doing, the colour composition attains a fascinating lyrical quality of dimensional variation and temporal modulation. A strong sense of monochromatic foundation is evident in the way that linear forms perpetually invade the screen space and act as a type of armature or sectioning device for various areas of colour pattern processes. The screen, thus, becomes the location of colour arrangements which alternate between a dominant verticality, horizontality, or multi-directionality, and the colours always appear to struggle against containment, to propel the raw visual energy of the work and actuate its vibrant dynamism.

Colour, then, may be seen as the perceptual fuel for the film's relentless lurid progress. Alternately, Lye will allow colour to pervade the entire screen in a vast overarching sweep of colour, then fragment and contain the colours by restricting them into dots or lines. The intermingling of patterns of colour leads to a bizarre clash between green lines and flashes of red and pink. The result is a curious quagmire of blending and muddied colour which emphasises the fact that colour combinations depend upon specific facts of compatibility for clear recognition. Total

randomness simply leads to obscuring masses of darkened gloom. At moments where excessive blending leads toward murky loss of chromatic clarity, Lye immediately alters the dominance of colour toward primary hues, and thus leads the viewer on a visual journey around the diverse possibilities of colour combination.

From the intense immediacy of heavy primary colours, the film is elevated into a higher level of chromatic clarity as Lye lays a lighter wash of thinner, paler colours across a white screen. This creates a powerful contrast with the extreme congestion of the preceding phases, and allows a breath of fresh air in the form of pale ethereal blobs of soft pink and fine smears of yellow. Here, Lye appears to have stippled and smudged the colour of the surface creating a more intricate pattern of intonation, and intensifying the suggestion of chromatic spatial relations. This momentary phase is replaced by the lurid strength of deep pervasive colour which fills the screen, as flat expanses of colour are additionally overlaid with the suggestion of patterned colour, and harmonically regulated colour combination. The directionality of movement relates to the variations of colour choice, as the rhythmic pace of the film intensifies along with its chromatic acceleration. Colours of various strengths and intensities combine with varying scales of shape, which pulls the viewer's gaze into, and back from, the perspectival focal point of the frame. Lye uses colour in this sense as both a magnifier and a distancing device in terms of spatial definition.

The constant flicker effect and granular quality of the surface perpetually remind the viewer of the corporeal actuality of the celluloid surface. The reality of Lye's decisions about colour choice are also emphasised by the relational evolution and

visual conflicts imposed upon the colour array. Lye variously chooses to either congest the screen with deeply intense colour, or to divest it of colour to focus on light washes of partial colour. These colour choices move in a directional pattern across the screen, and lead the attention of the viewer in an ongoing journey throughout the filmic space-frame in a series of partitioned phases which are defined by changes in colour dominance and combination.

Colour Box is perhaps most notable for its extreme visual complexity and dynamic rapidity. Yet amid such convolution, the guiding force of chromatic awareness at all times allows the viewer to discern the creative choices of expression which Lye chooses to utilise. Whether apparently random, or intensely contrived, the work always retains its attachment to the developing patterns of colour contrast. Near the end of the work, Lye sends a compressed linear pattern of spectral colours across the screen in a right to left direction. This colour palette appears as a metaphorical acknowledgement of the way in which Lye can select and mould the sensory capacities of his colour exploration through structured processes of chromatic configuration. Lye's profound intuitive awareness of colour expression, and the properties of chromatic harmony, at all times in this film crucially influence his decisions. *Colour Box* is indeed, as the title suggests, packed with the profusion of diverse chromatic possibilities. Yet it is the choices and contrasts of these colours which create the ultimate effects of chromatic reaction presented in the film.

Merleau-Ponty states that "we shall not succeed in understanding perception unless we take into account a colour function which may remain even when the qualitative

appearance is modified".[21] In Len Lye's *Colour Box*, resonant structures are formed through pure chromaticity, and their qualitatively modified appearances subsequently interrelate and affect one another reciprocally. With this diverse and interactive colour palette, Lye phenomenologically constructs his vivid images and imbues them with direct spectral expression. Merleau-Ponty continues:

> We are predisposed to believe that we have different arrangements of a perception of colour which is in itself invariable, different forms conferred upon one and the same sensible material. In fact, we have different colour-functions in which the alleged material disappears completely, since the act of patterning is effected through a change in the sensible properties themselves.[22]

The phenomenological conception of chromatic expression, then, is a percept charged with transcendent cognitive correlations beyond that which may be conventionally decoded. Chromatic expressivity in early European avant-garde film reveals the capacity of actually constituting the critical convergence of disparate and distinctive levels of signification in an immediate sensory experience.

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[21] Merleau-Ponty, Maurice, *Phenomenology of Perception.* (London: Routledge, 1962), p 305.
[22] Ibid, p 306.

IV. SENSORY STRUCTURES: COMPOSITION

Yet another key element of visual expressivity in early European avant-garde film is the structural use of composition, involving perspective, shape, line, and framing. Perhaps the most significant advance in the expression of visual sensation in art was the discovery of perspective. This discovery introduced the means by which a sensation of three-dimensional space can be created upon a flat picture surface. Linear, or geometric perspective, also variously known as Renaissance, optical, or scientific perspective, is based upon a fixed central viewpoint. It is reliant upon the optical impression that parallel lines converge as they recede towards a vanishing point on a horizon line level with the viewer's eye, and that objects become smaller and closer together in the distance. The Italian humanist writer, architect, sculptor, and painter Leon Battista Alberti (1404-1472) was the first person to formulate a systematic guide to perspective in his famous treatise *On Painting* (1435), which was based upon the pioneering work of Filippo Brunelleschi (1377-1446), in the early 1420s. Although not in Alberti's system, but quite frequently in the Renaissance, two or more vanishing points rather than one may be introduced. Not all methods of perspective are based on optical laws. Some imply a moving rather than a fixed eye, though illusions of depth may still be created by overlapping of forms, vertical or oblique recession of parallel lines, and differences of scale.

The American psychologist and artist Adelbert Ames developed a series of ingenious perceptual demonstrations in the 1940s, of which his 'Distorted Room' is perhaps best known. The Ames Distorted Room was a specially constructed room which provided a striking demonstration of the cues for shape and depth perception. The

room is of distorted construction: three of the walls are actually trapezoidal, and the ceiling slants considerably. However, due to the use of the cues of shading, size constancy, and interposition, the room appears normal to an outside observer. Looking into the room produces many illusions. For example, objects and people appear distorted. The intriguing feature of the Ames Distorted Room, for our purposes here, is its implication that perception is a matter of making the most accurate judgement on the basis of available apparent visual evidence. This reveals the vital importance of experience, and belief, in processes of visual perception.

Linear perspective is reliant upon the arrangement of lines in order to express the sensation of depth and shape. Linearity is, in itself, an important element in processes of visual perception and expressivity. Lines, such as those in fine art for example, can be endowed with innately expressive phenomenological properties. The mind assimilates roundness, horizontality, verticality, and all other modes of linear direction and motion, such as those manifested in nature, which evoke feelings expressive of those manifestations. Jagged mountain peaks stretching vertically toward the sky can arouse feelings of grandeur and awe, such as in the Tetschen altar painting by Caspar David Friedrich entitled *The Cross in the Mountains* (1807, Dresden, Staatliche Kunstsammlungen). On a mild day, a calmly horizontal expanse of ocean can evoke feelings of peace and repose, as in Joseph Mallord William Turner's painting *Sunset on the Jura* (1841, London, British Museum). By contrast, an ocean's angular leaping storm waves arouse anguish and agitation, as in Turner's *Snow Storm: Steam-boat off a Harbour's Mouth* (1842, London, Tate).

These examples of 19th century Romanticist Landscape painting clearly demonstrate the expressive properties of shape and line as depicted in nature, yet expressive properties such as these are active throughout the full range of visual representation and perception. In sculpture, architecture and design, as well as in film, these myriads of other natural linear rhythms have in them a basic structural shape which defines their direction, movement, and mood. Lines, essential to form, are thus visually expressive. These expressive lines are part of repertories or vocabularies of linear moods which are well known to artists, choreographers, and photographers, as well as to film-makers. Such phenomenologically essential linear structures may occasionally be invisible, but can be visualised through direction, movement, angle, and tone.

In his theoretical analysis of linearity entitled *Point and Line to Plane*, Wassily Kandinsky speaks of vertical and horizontal lines in terms of temperature: vertical lines are regarded as warm-to-hot, horizontal lines are cool-to-cold. This is suggestive of a further perception of these lines in terms of temperament. Kandinsky goes on to describe the expressivity of lines, as recognised in established aesthetic theory, and their innate affective values. These affective values of line include some of the following abbreviated examples: A simple straight vertical line involves a sense of strength, striving and aspiration; a line with a strong vertical direction but with a slightly diagonal or curving angle expresses movement as well as tension, insecurity or threat; jagged zigzag lines convey violence, agitation, excitement or unpredictability; long loose gently curving lines often with a generally horizontal direction involve sensations of affection, beauty and gracefulness; a line with tighter

more frequent curves in a horizontal direction involves stability or serenity; a firmly upward curve similar to the letter 'u' denotes expansion, whilst the inverted version of this, curving downward, denotes melancholy or submission; finally, spiral lines are described as being expressive of a sense of benevolence or hope.[1]

Psychological research on affective values of line and shape has been aroused by art theorists' and critics' statements about, for example, 'melancholy lines', or 'quiet lines', such as in Renaissance art, and 'violent lines' as in Baroque art. These statements raise the question of whether the feeling character of line is a quality of the line itself, or whether it is suggested by literary subject and content of the art work. Another question was whether the phenomenon of affective quality can be perceived equally by various observers. Psychological experiment has found that lines can be grouped into simple classes, that lines have direction, and that certain feelings are aroused by looking at lines of various kinds. For example, concentrating on clusters of adjectives signifying various emotions and moods, it was found that irregular, jagged and sharp-angled lines express agitated emotions, while gently curved or relatively steady lines express more quiescent states of mind.[2] In another psychological experiment, abstract conception and grammatical relations were found to be expressed in a manner that conveyed meaning reliably to others.[3]

Further study has concentrated upon investigating the degree of consensus in grasping the meanings of various lines and forms. For example, sadness has been

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[1] Kandinsky, Wassily, *Point and Line to Plane.* (New York: Dover, 1979), pp 57-92.
[2] Peters, G A and Merrifield, P R, 'Graphic Representation of Emotional Feelings', *Journal of Clinical Psychology*, 14 (1958), pp 375-78.
[3] Werner, H and Kaplan, B, *Symbol Formation.* (New York: Wiley, 1963).

coupled with slightly curved downsloping lines; severity and tranquillity with horizontal lines; cheerfulness with ascending lines; and agitation or anger with angular or sharply curved lines.[4] It is interesting to note the significant correspondence of these findings with the theories of Kandinsky.

The key conclusions which can be drawn from the preceding psychological studies appear to be that:

a) lines are expressive through a variety of properties;
b) both the image generator and recipient have associations of meanings with line, form and structure which they produce or observe;
c) these meanings can be culturally shared; and
d) there is agreement about the meanings of expressive lines, but some variation in the degree of this agreement.

When lines form closure, a shape is created. Lines may also contain shapes or be suggestive of shape formations. Shapes are replete with possibilities of symbolic expression. The locations of such expressivity can be within the whole of the shape, in the basic components of the shape, and in their mutual relationships. Some of the chief components are angles, line, and tone. Another source of expressivity exists in the specific location of the shape itself within the frame. Where there are several shapes, interrelationships arise which call for special attention to the individual role of each shape in spatial relation to others and to their areas or points of contact.

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[4] Hall, K R L, 'The Fitness of Signs to Words', *British Journal of Psychology*, 43 (1951), pp 21-33.

Phenomenological observation and analysis of all structural aspects of shapes are of special importance because the components of their relationships are powerful sources of visual expression, touching on aspects of inner experience and on the direct discovery of significations and meanings.

There are two major characteristic qualities of shape which are most significantly catalytic to expression. The first quality is *immediacy*. Most structural shapes are basic geometric figures - the circle, the triangle, the square or rectangle, and their respective variations. These basic shapes lend themselves to modification, elaboration, symbolic thinking, visual embodiment of sensory feelings, and phenomenological intuiting. The perceptual immediacy of apprehending basic shape structures offers a particularly penetrative lucidity of expressive understanding. The second major characteristic quality is *abstraction*, which is in some ways similar to immediacy of form. Much thinking is involved in the processes of visual interpretation, along with intense feeling. It is, in fact, a complex mental activity on a high experiential level. Multiple mental forces are engaged in the activity: thought, memory, selectivity, imagination, emotion, and sensory experience. In this sense, the complex phenomenological operation of visual expressivity may be described as part of a cognitive-emotive process. Merleau-Ponty states that: "It is a matter of understanding how a determinate shape . . . can come to light before me, become crystallised in the flux of my experience and, in short, be given to me."[5]

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[5] Merleau-Ponty, Maurice, *Phenomenology of Perception*. Trans C Smith. (London: Routledge, 1962), p 300.

Hans Richter's *Rhythm 21* is an exemplary demonstration of the filmic art of compositional arrangement, and structural interplay of line and form. The shapes examined in this 1921 film are square and rectilinear, forms which heighten the media-based awareness of the screen frame. Richter uses the shapes of the film to perpetually guide the gaze of the viewer, and to generate a rhythmically shape-conscious pattern of visual responsiveness. The screen is repeatedly divided and subdivided, sectioned and reconfigured around the centrifugal theme of rectilinearity. The work is a prime example of the ways in which the compositional concepts of pure shape can mould and direct visual responsiveness.

The film opens with a pure black screen which asserts the establishing rectilinearity of the screen surface. From each end of the screen, two blocks of white move inwards from left and right, simultaneously, toward the centre of the screen. This sectioning device operates not on the basis of moving lines, but on the assumed motion of a large block of pure rectilinear shape. On reaching the centre of the screen, these areas of white square shapes immediately begin to move outwards again. This creates a remarkable dynamic sensation of fluid movement, and instantly asserts the power of alternating shapes to imply a powerfully cinematic sensation of visual affectivity. Richter uses shapes in a pure sense to establish an awareness of the generality of form which controls the complexity or simplicity of the screen's structured surface. The viewer is faced with the breadth of the screen, or the subdivided convolution of multiple shape-forms which intensify the linear complexity of the composition. A square shape, subsequently, appears to shrink upon the screen. Here Richter demonstrates the way in which the pure simplicity of

shape can be used to imply motion, recession, and depth. Again, the screen is split by a pure implicated linearity, as broad horizontal bands of black and white alternately expand and contract from a centre-line across the screen. At this stage, Richter has predominantly used shape in very large scale, broad suggestions which have modified the viewer's sense of structural contrast of size, and compositional proximity of the forms themselves. He then alters this predominant compositional tendency, to split the screen into a series of more complex areas of relational shape. Rectangular shapes begin to appear and recede at opposite ends of the screen. An intriguing visual effect occurs as Richter alternates the large scale rectilinear forms with the smaller scale forms, each gliding smoothly in and out of the screen space. At all times, the rectilinear framework of the ever-evolving composition remains intact, yet the relentless motion of the work is hypnotically incessant.

As the linear shapes move strategically across and around the screen frame, so the viewer's attention is guided to various areas of the screen: towards a black rectangle at one end of the screen, then into the relational configuration of three squares placed around the frame in varying sizes, thus enforcing a compositional hierarchy whereby the eye traces the shapes themselves and the nature of their aesthetic placement. The rhythm of shape variation is then elevated to a further level of responsiveness as Richter elects to alter the nature of the movement of the shapes. At one point, they glide gracefully across the screen in a fluid procession, then they appear to be transformed into a staccato montage of successive static frames. Despite this alteration in editorial development, the key centrality of the angular, rectilinear

compositional core of the work stands out as a recurring motif. Standish Lawder states that in *Rhythm 21*:

> . . . sections of the film use a larger number of design elements, all rectangular in configuration, and introduce dissolves of one composition into another. By expanding and diminishing the size of these individual forms, a pictorial composition of constant imbalance is created. As one form swells to the foreground, another sinks into the distance, others merge, interpenetrate, or overlap. No single form seems to move in isolated activity, for the compositional interdependence of these formal elements is far greater than in static paintings of similar design - the movements of each form seem inexorably linked to movement elsewhere on the screen.[6]

The rectangular forms of *Rhythm 21* subsequently begin to appear not simply as monochromatic dual oppositions of black and white, but as graduated configurations of tonal greys of varying depths. Once again, Richter is manipulating the means of relational contrast and modes of variation, so that in this case a sense of spatial depth is implied instead of the sharp-edged graphic divisions of black and white. Richter re-emphasises, in this way, the means by which perpetuity of angular composition acts as a guiding force of visual sensation. The ongoing compressions, expansions, and angular collisions of the work repeatedly enforce the compositional intensity of related shapes and linear forms. The apparent simplicity of the square and rectangular shapes acts as a fascinating counterbalance to the complex evolution of interacting compositional movement which permeates the work. It is precisely this delicate tension of visual awareness between the almost static continuity of the theme of the square, and the relentless alternations of compositional locations, which serves as the central force of the film's rhythmic impact. The screen is constantly

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[6] Lawder, Standish D, *The Cubist Cinema.* (New York: New York University Press, 1975), p 52.

subdivided, then re-unified, sectioned, separated, and bonded. At all times, the linear strength of the compositions act to bind the viewer's attention into specific zones of the screen, so that the film's development progresses in an unravelling stream of awareness of various shapes at various regions within the frame.

The relative regions of each compositional stage of the film are crucial to the multiple levels of shape awareness the viewer maintains and reforms throughout the work. All of the shapes gain a particular level of signification through their compositional relationships to other shapes on the screen, which either surround them, or precede or replace them. At the heart of the responsive effect of any visual composition is the nature of relationship: the relationship of various specific component parts of the overall visual arrangement. Visual composition, then, depends crucially upon the nature of the placement of components which modify the visual responses to the whole. Husserl uses this notion of component relativity in developing his 'regional idea' of the perception of physical appearances:

> The idea of the region prescribes a quite determined, determinately ordered, strictly closed series of appearances progressing in infinitum taken as an ideal collectivity - a determined, internal organisation of their flows which, in conformity with essence and accessible to investigation, cohere with partial ideas universally designated in the regional idea of the physical thing as its components.[7]

In *Rhythm 21*, Richter is exemplifying the nature of composition in terms of the relativity of visual components. It is an intriguing phenomenological meditation, in this sense, upon the very central concepts of composition located within the spatio-

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[7] Husserl, Edmund, *General Introduction to Pure Phenomenology*. Trans F Kersten. (Dordrecht: Kluwer, 1982), p 361.

temporal realm of film. Here, the profound strength of film to reinterrogate the terms of visual responsiveness is powerfully asserted. Richter uses this film as a quintessential demonstration of visual relativity in the arena of the structured composition. He shows the ways in which cinematic compositions of pure shape and form can operate in a rhythmic manner to perpetually destabilise and refocus the compositional reference points of a visual artwork. White squares on a black background are inverted into black squares on a white background. White rectilinear sections slice into a square black backing. Repeatedly, the fixity of compositional relationships are revised and relocated, and repeatedly the viewer is made aware of the implicit bonds between screen and surface, between shape and content.

In this remarkable work, Richter demonstrates elegantly the ways in which all shapes exist purely in terms of their structural relationships. Whether that means the relationships of linear arrangements within a single shape, or of relationships to surrounding shapes, there is always the concept of compositional structure which controls and defines the exact nature of the image. *Rhythm 21* ingeniously exposes the screen surface as a modifying factor in the responsiveness of the viewer, enforcing the rectilinear frame of awareness of events and moulding the nature of the contents of the screen. The film concentrates attention upon the crucial concept of structural arrangement, selection or exclusion, and reminds the viewer that all components of visuality operate in a complex process of relativity and reciprocation. Brian O'Doherty has stated that in *Rhythm 21* "there is a kind of conceptual

kinaesthesia, a paradigm of body reaction. The effect is tonic, sudden and invigorating."[8]

O'Doherty's use of the notion of paradigmatic body reaction as a kinaesthetic aspect of *Rhythm 21* is intriguing, as it pertinently intersects with Merleau-Ponty's phenomenological theorisation of perception as dependent upon the specific nature of physical body orientation in relation to the spatial experience of the environment. Merleau-Ponty states, in this regard:

> Every external perception is immediately synonymous with a certain perception of my body, just as every perception of my body is made explicit in the language of external perception. If, then, as we have seen to be the case, the body is not a transparent object, and is not presented to us in virtue of the law of its constitution, as the circle is to the geometer, if it is an expressive unity which we can learn to know only by actively taking it up, this structure will be passed on to the sensible world. The theory of the body schema is, implicitly, a theory of perception.[9]

Merleau-Ponty goes on to expand this spatial theorisation of perceptual phenomena thus:

> For example, . . . there are sensations which are the subject's states or manners of being and, in virtue of this, genuine mental things. The perceiving subject is the place where these things occur . . . All knowledge takes its place within the horizons opened up by perception.[10]

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[8] O'Doherty, Brian, *Hans Richter* (catalogue for retrospective exhibition, Finch College Museum, Contemporary Wing, 1968). Quoted in R Russett and C Starr, *Experimental Animation: Origins of a New Art*. (New York: Da Capo, 1976), p 55.
[9] Merleau-Ponty, Maurice, *Phenomenology of Perception*, p 206.
[10] Ibid, p 207.

The conception of perceptual experience as being definable in spatial terms can be exemplified by the structural optics of composition in Hans Richter's film of 1923 entitled *Rhythm 23*. This film quickly established its central concern with perceptual concepts of composition in the opening section, in which square and rectilinear forms combine with diagonal bands of shape to form complex interactions of directional linearity. Similar to *Rhythm 21* in its focus upon rectilinear arrangements, *Rhythm 23* takes the compositional framework to a further level of detail by introducing a wider variety of contrasting diagonals and nuanced differentiations of shape. Again, the square is utilised as a key motif of form which asserts the factual physicality of the screen surface and the modifying influence of the parameters of the screen frame. Yet in this film, Richter also includes diagonals which appear to extend beyond the boundaries of the frame to suggest a further dimension of screen space. Rather than concentrating solely upon a rectilinear fixation with formally bounded parameters and framing, *Rhythm 23* engages with the idea of a compositional counterbalance in the form of diagonally weighted shape structures. There is still an interest in dual evolutions of shape and form, as squares and rectangles frequently divide and subdivide into separate zones of the screen frame, yet this horizontal perceptual directionality of movement is further modified by the inclusion of narrow rectilinear shapes, or bands of linear form, which are positioned at angles which lead the eye on a more complex directional path. These have the effect of fragmenting the straightforward linear flow of compositional development.

The influence of *Rhythm 21* is clear to see, as squares and rectangles again appear, disappear, then reappear at various locations and at different scales around the

screen. A key distinction, however, can be noted in the increased dynamic rapidity of the editing flow, and an even more highly developed awareness of the ongoing ability of shape-based directionality of composition to mould and channel the focus of attention. Richter utilises the positive and negative image alternation of black upon white, white upon black, before dissecting the formal unity of the composition into a dramatically detailed configuration of linear and angular complexity. The sensation of screen scale is powerfully manipulated as a large dominating square form is swept backwards in a sharp editing cut, to become part of a wider sweep of detailed linear formation. The screen at this stage becomes a diverse surface of formal attractions, sectioned in vertical and horizontal angles to present a composition of rhythmically varying levels of detail and simplicity. Broad rectangles are bisected by narrow detailed bands of shape and offset by the careful placement of a solitary square which lends an asymmetrical contrasting balance to the shape-based composition. Balance emerges as a central theme of *Rhythm 23,* and Richter at all times develops the notion of shapes and structures in unison, perpetually modifying the stability of scenes through pure composition.

The eye is constantly guided across the structures of the film in terms of a balance of compositional components, and the perpetual sensation of impending imbalance and disunity of structural elements. In moments of linear detail in the film, there seems to be a clear influence of Eggeling's *Diagonal Symphony.* Lines emerge and grow in a directional manner across the screen. There is a sense of the purity of organic growth and development as linear shapes cross the frame, composition itself being redefined in terms of temporal evolution. In this way, the very core elements of

composition are themselves scrutinised in a unique and radical manner. In the context of avant-garde film, and the effects at the disposal of film-makers, the key elements of image construction and visual manipulation can be analysed in extreme detail. Composition, of course, involves the sense of directionality and the manner of the eye's movement around and across a static scene. Yet for Richter, this idea of compositional visual directionality has been elevated to an entirely new level of optical affectivity in the mobilised imagery of film. In this regard, Richter is conducting revolutionary experimentation with the very foundations of the concept of visual and pictorial composition by foregrounding the role it fulfils as a dynamic motivator of visual apprehension.

As Richter intensifies the complexity of the film's linear arrangements, it becomes clear that he is exemplifying the fact that linearity is very much at the heart of shape, form, and composition. The evolving linear arrangements upon the screen surface appear to develop in a manner similar to the progressive directionality of text or symbolic language. The placement of the lines, and their expansion, imply a direction for their 'reading'. These lines, though, are also signifiers of the origins of shape sensation. They suggest the elemental nature of shape itself as crucially dependent upon the choice, selection, and arrangement of component factors to build a meaningful image. The coherence of any shape, of course, is entirely dependent upon the relationships of the lines and angles which it comprises. In these instances of linear detailing, Richter moves on from the powerful impact of pure shape itself, to mould a lyrical and fluent grace of complementary and harmonic visual arrangements. Differing lengths of horizontal lines are impacted to form a gentle

sweeping curve of elegant directionality which leads the viewer's eye to some more strongly defined short vertical rectangles, which bolster the composition and give a sense of visual stability to the lucid implication of optical motion which *Rhythm 23* generates. The sense of scale conveyed by these sequences of shape contrast, is further enhanced when the detailed linear elements are replaced by large scale diagonal bands of shape which, with differing levels of tonal definition, expand into the centre of the screen with purposeful intent.

It is at this stage that Richter most profoundly modifies the sensation of compositional balance in the film. Pure verticality and horizontality had previously formed such a pronounced framework in *Rhythm 23*, that there is a genuine sense of subversive visual destabilisation in the appearance of such defined diagonal forms. The viewer is presented with a complex configuration of expanding and overlapping diagonal shapes which, despite retaining the rectilinear coherence of previous sequences, stand at a variety of contrasting angles suggesting imbalance and discord. The composition here becomes intense and congested, as the eye darts around the screen to gauge the myriad of alternating levels of angular correspondence and discordance. Richter cleverly builds strong swathes of shape into the peripheral areas at the edge of the screen, and reserves the central portion of the screen for a variety of smaller and more detailed shapes and angles. This also has the effect of luring the eye into the central depth of the screen, and exemplifies the compositional strategy of grasping and positioning the directed gaze of the viewer. Following this particularly powerful sequence, Richter reverts to the dominance of the central square motif, and then intersperses this with an ongoing phase of horizontal and

vertical linearity of increasing detail. This minutiae of linear detail is then used as an intermittent counterbalance for the vast blocks of pure rectilinear form which appear and manoeuvre across various sections of the screen. The potent contrasts of verticality and horizontality interact with contrasts of proximity and distance, at all times with the simple compositional strength and unity of shape itself acting as the guiding force for visual responsiveness.

Rhythm 23 is a remarkable film for the ways in which it develops Richter's vision of a pure and structured compositional framework of optical sensation, and also for the way in which it successfully utilises shape and angularity to build an oscillating pattern of visionary progression. At the heart of such optical patterning is Richter's intuitive knowledge of the extraordinary strength of formal composition to mould visual perceptions. The processes of extricating particular expressive elements from an indicated compositional pattern shows a phenomenological actuation within perception itself. Phenomenological apprehension is often the direct sensory experience of wresting latently immanent expressive features or perceptual relationships from complex optical contexts. It is an experience which leads, in many instances, to perceptually vital revelations. Husserl's assertions on the phenomenology of spatial configurations are pertinent:

> It is shown, therefore, that something such as a physical thing in space is only intuitable by means of appearances in which it is and must be given in multiple but determined changing 'perspective' modes and, accordingly, in changing 'orientations' . . . Finally, there must emerge from this perfect intellectual seeing of what the idea of the actual physical thing represents in phenomenologically pure consciousness,

> how it is the absolutely necessary correlate of a structurally investigated . . . complex.[11]

Husserl places an important emphasis upon the idea of a located position for sensory experiences whereby the mind apprehends an ongoing stream of contained, perspectival visions of the objects of attention which enable the critical scrutiny of the status of those perceptual objects. He went on to suggest that such scrutiny becomes limited when the viewer becomes detached from a specific observational location and identifies the holistic entirety of an object rather than its implicated components. Jacques Derrida has pointed out that Husserl's assertions in this regard are demonstrative of the concept that knowledge is implicitly based upon contradiction. The perceptual experience of an object is affirmed by the concurrent material presence of the object and its autonomously recollected absence. Thus, perception is precisely the holistic fusion of objective material and subjective sensation.[12]

Husserl's experiential phenomenological concepts develop from this to engage the notion of universal objects as representative of the perceptual value of apprehended ideas. He states:

> And just as, while looking upon some concrete case, we refer, not to it, but to its universal, its idea, so, while regarding several acts of ideation, we rise to the inwardly evident recognition of the identity of those ideal unities which are meant in our single acts. And it is identity in the authentic, strictest sense, the same species or species of the same genus.[13]

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[11] Husserl, Edmund, *General Introduction to Pure Phenomenology*, p 362.
[12] Derrida, Jacques, *Speech and Phenomena, and Other Essays on Husserl's Theory of Signs*. (Evanston: Northwestern University Press, 1973).
[13] Husserl, Edmund, *Logical Investigations*. Trans J N Findlay. (London: Routledge, 1970) p 149.

Here Husserl elucidates the idea that perceptual scrutiny involves the process of recognising the key connective elements present within objects both individually and collectively. These universal connectivities, then, represent vital factors in processes of experiencing perceptual phenomena. Hans Richter develops intriguingly similar ideas when discussing his scroll paintings which form the basis for the films *Rhythm 21* and *Rhythm 23*:

> The contrast-analogy process had created an energy which grew as the relations multiplied. The beginning set up, as planned, *rapports* with the end, the first part with the second, the second with the third, left with right, top with bottom, every part with every other. Without intending to, I had arrived at a kind of dynamic expression which produced a sensation rather different from that possible in easel painting. This sensation lies in the stimulus which the remembering eye receives by carrying its attention from one detail, phase or sequence to another that can be continued indefinitely. This is because the esthetic theme is just that: the relationship between every part and the whole.[14]

Richter goes on to add that the "straight, geometrical figures" of *Rhythm 23* "start with a simple elementary pattern - rectangle or square - and develop such elementary forms to their maximum through all kinds of counterpoint variations and over different phases."[15] Indeed, this elemental quality of revealing the intrinsic structural content of perceptual material is itself profoundly phenomenological. Husserl asserts that:

> . . . in the phenomenological attitude we direct our regard to some pure mental processes or other in order to explore them, but that the

[14] Richter, Hans and Gray, Cleve, *Hans Richter by Hans Richter*. (London: Thames and Hudson, 1971), p 114.
[15] Ibid, p 114.

> mental processes of this research itself, with this attitude and line of vision, should, when taken in phenomenological purity at the same time belong to the realm to be explored.[16]

Such purity of mental processes, presented with the elemental sensory nature of optical responsiveness, was an objective sought in the visionary works of Oskar Fischinger. His fascinating film *Studie 2: Tanzende Linien* (1929/30), focuses upon the dynamic compositional qualities of moving shapes which cross the screen in synchronicity with musical arrangement. Although the film appears to depend upon the compositional directionality of optical music, the role of shape formation is integral to the work's compositional coherence, impact, and aesthetic fluidity. The film commences with the lyrical curling movements of a cluster of small curvaceous shapes around the centre of the screen. Already, Fischinger is utilising the shape of the screen frame to focalise attention on specific zones for specific perpetual effects. These small shapes are exceptionally delicate, and convey a distinctly organic sense of self propelled energy which owes a great deal to the specific properties of their compositional formation. Indeed, the intuitive sensory effects of mobilised image formation will prove to be a vital element in this film's powers of visual expression. The perceptual role of intuiting is described thus by Edmund Husserl:

> Intuiting an individual physical thing, its movements, its approaching and receding, its revolvings, its alterations in form and quality, pursuing in intuition its modes of causal relations, we effect continua of intuitings which coincide thus and so, which join together into a unity-consciousness.[17]

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[16] Husserl, Edmund, *General Introduction to Pure Phenomenology*, pp 150-1.
[17] Ibid, p 360.

This phenomenological conception of intuiting corresponds remarkably, and almost precisely, with the optical presentation of Fischinger's film content. The synchronised and contrasting directionality of form in *Studie 2: Tanzende Linien* is the intuitive essence of visual responsiveness in the work. A series of implied shapes is traced by the clustered formations. These are generated through unified motion of elements upon the screen. Initially, the suggestion of circularity emerges as the formations move repeatedly around in a central focal point, then the suggestion of verticality emerges as they sweep upwards, and additionally the suggestion of diagonal structure is made as the optical elements move off-centre to the upper corner of the screen. In this regard, Fischinger cleverly uses compositional shapes and structures in a multi-layered manner. The visible portrayed shapes upon the screen vary and evolve in accordance with a particular structure, and at a further level, these shapes in turn create perceptual structures in the form of their directional movements and trajectories across the screen. Shape and compositional structure, then, are thus used as key devices of this film's processes of visual affectivity. The viewer's eye is manoeuvred and manipulated throughout a series of distinctive shape-based directions which control the compositional rhythms and contours of the work's impact. As these shapes move around, so their specific form and scale alters and adjusts. At times the shapes themselves seem to shrink and narrow in accordance with their speed and direction. At other times, they swell and expand to fill larger areas of the screen, usually slowing in speed correspondingly. Whether circular or oval, curving or linear, the shapes are at all times modified in order to enhance sensations of speed, motion, direction, and overall rhythmic pace. Shape composition here serves as an integral factor in the interpretation of various levels of

sensory awareness and response in the film. Fischinger also achieves an interesting compositional effect by generating a perceptual tension between the properties of the shapes and the frame within which they reside. The strictly rectilinear screen frame acts as a visual counterpoint to the lyrical sweeping motions of the choreographed shape arrangements. Although the shapes frequently appear to sweep off the screen into an extra-filmic dimension, they nevertheless respond to the framing devices of the screen and often rotate around a perceptual centre-point upon the screen. This implied centrifugal zone acts as a key device in the compositional structure of the film. It forms a location for balance and equilibrium, from which specific directional movements and formations can convey certain types of optical expressivity.

At a key transitional point in the film, Fischinger changes the emphasis away from the pure simplicity of circular shapes and the delicate fluidity which they imply, and commences a phase in which the moving shapes become predominantly rectangular. As such, the nature of their patterned compositional flow alters accordingly. These rectangular ribbons of shape move in a very precise, regimented manner which is frequently symmetrical. They do so around a strongly vertical dividing area which sections the screen into perceived spatial segments to the left and right. Fischinger alternately simplifies and convolutes the intensity of shape relationships and compositional detail. These rectangular forms divide and subdivide, then appear to reunify into more cohesive wholes. In this way, Fischinger exemplifies the way in which composition is based upon responses to the divisions and unities of specific zones within an image. *Studie 2: Tanzende Linien* itself becomes the site of the scrutiny of compositional separation and collision, perpetually dismantling and

coalescing. The very essence of compositional sensation, then, is being exemplified and amplified in this intriguing process. The rectangular shapes become compressed into squares, and spread into more diverse arrangements. They move into an increasingly fluid surge of motion which begins to imply a sensation of circularity. In this way an interesting tension between compositional shape affinity emerges as squares start to invoke illusions of circles. The compositional contrast between circle and square is used as a tool of perceptual expression as Fischinger continues to intensify the nuanced patterns of shape-based configuration. This sense of contrast extends into the area of implied shape arrangement, as the squares directionally rotate then sweep into a rhythmic horizontal formation moving upwards and downwards across the screen. As the eye is led repeatedly along this pulsating trajectory, so a counterbalancing movement commences in a curving diagonal manner. The expressive sensations of pure compositional rhythm interweave as an increasingly complex structure of form is developed.

A further transitional phase in the work reverts the emphasis to the softer circular shapes which again move around the focal centrepoint of the screen in a variety of alternating directions. The effect of this draws the viewer's eye into a strongly fixated bond with a very specific area of the screen, and heavily influences the visual sensations of motion and direction. Once again, Fischinger reintroduces the square configuration to alter the textural arrangement of the film. In this instance, the square formations move with an enlivened rotational impulse which curls and contorts the shapes, moulding the screen space into a higher level of perceived dimensionality. The shapes increasingly drift apart, then draw together, generating

alternate expanses of open screen space and dense congestion. Shape itself, in this regard, becomes capable of generating perceptions of both spatial distance and surface proximity.

The film concludes with an interesting counterbalance of crescendo and diminuendo, as a vast surge of related rectangular forms move upwards to fill the screen. This is immediately followed by a small delicate cluster of fine elegant shapes gently falling downwards over the screen with a softly wave-like flow. *Studie 2: Tanzende Linien* beautifully moulds and modifies the visual responses of the viewer in synchronicity with the sensory structures of music, and develops an intriguing transcendent level of rhythmic reflexivity based entirely upon shape suggestion and composition. In this film, optical effects parallel musical effects, and thus amplify the visual properties of compositional sensation. Shape is presented here as existing at a variety of elemental perceptual levels, all of which interact and resonate with potent sensory implications. Within these implications is the intuited nature of spatial awareness. Martin Heidegger examines the perceptual purity of intuited spatial dimensionality thus:

> . . . thematisation of the spatiality of the environment is still predominantly an act of circumspection by which space in itself already comes into view in a certain way. The space which thus shows itself can be studied purely by looking at it, if one gives up what was formerly the only possibility of access to it - circumspective calculation. When space is 'intuited formally', the pure possibilities of spatial relations are discovered.[18]

The intuited aspects of pure spatial relativity emerge with fascinating profundity in another of Fischinger's early optical studies. His sophisticated explorations of visual

composition and the spatially structured configurations of dynamic shapes attain a particularly impressive level of perceptual impact in *Studie 6* (1930). This film displays all of the qualities he had established in previous flourishes of compositional detail and expands them further to take the modulations of shape and space to yet greater perceptual potency. The dynamic movement of shape is accelerated dramatically in this film, to the extent that speed itself becomes a key aesthetic component of the work. Shape, however, is always integral to the way in which this aesthetic acceleration is apprehended and interpreted. Indeed, the phenomenological importance of the perceptual fusion of object and motion is something which Merleau-Ponty explores carefully:

> Perception of movement can be perception *of movement* and recognition of it as such, only if it is apprehension of it with its significance as movement, and with all the instants which constitute it, and in particular with the identity of the object in motion. Movement, . . . is one of those 'psychic phenomena' which, like given sense contents such as colour and form, are related to the object, appearing as objective and not subjective, but which, unlike other mental data, are not of a static but of a dynamic nature.[19]

With corresponding implications in *Studie 6,* a dynamic array of rapidly oscillating and ever-evolving shapes build up the integral visual material of an ingeniously orchestrated explosion of accelerated angles, lines, and forms. Immediately, the film demonstrates its dynamically mobilised intent with a sudden surge of shapes which appear in swift succession, moving from tiny solitary shapes to colliding clusters, and on to vast screen-enveloping curves which thrust the viewer's perceptions into an intense proximity of scale with the filmic data. The awareness of organic

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[18] Heidegger, Martin, *Being and Time.* (Oxford: Blackwell, 1962), pp 146-7.
[19] Merleau-Ponty, Maurice, *Phenomenology of Perception*, p 271.

characteristics again pervades the shapes themselves as they appear to transfigure and metamorphose into pseudo-naturalistic figurative entities. Always, though, the essential image-based strength of shapes and their compositional arrangement propel the charged attention of the eye onward throughout the film. A profusion of tiny arching crescents swoop, dive and veer across the screen, their size, shape, and direction perpetually altering. These crescents then modify into linear overlapping angles whose patterns of movement vary in accordance with the alteration of their form. In this work, the compositional dynamism is so intense that the film is truly experienced as a pulsating surge of direct sensation. Into this pulse of sensory energy, the key elemental factors of Fischinger's complex language of shape structure and composition have been injected. There is an ever-present awareness that despite the relentless pace of progress and reconfiguration of arrangement, core qualities of compositional formation are being carefully built. Merleau-Ponty states that:

> To experience a structure is not to receive it into oneself passively: it is to live it, to take it up, assume it and discover its immanent significance.[20]

Indeed, it is precisely the elemental immanence of structure within *Studie 6* which generates its active perceptual dynamism. The curving shapes of the film move with a circular and purposeful swirl, blending into angular lines which meticulously segment the screen into a series of distinctive and specific zones. These zones then form the basis for the ensuing configuration of altering structures, as swirling crescents again spin upon the screen surface. The pace of these interchanging zones

of screen segmentation seems to overlap, such is the rapidity of succession. In this very specifically filmic process of temporal sequencing and transition, a perceptual template of compositional balance becomes generated. The swift interplay of linearity, horizontality, and angularity offsets the surface rotations of circularity and a clear but impulsive overlaid pattern of definite sequential shape succession becomes etched upon the screen. Merleau-Ponty's phenomenological views are again profoundly pertinent:

> As for the relationship of the perceived object to my perception, it does not unite them in space and outside time: they are *contemporary*. The order of 'co-existents' is inseparable from the 'order of sequences', or rather time is not only the consciousness of a sequence. Perception provides me with a 'field of presence' in the broad sense, extending in two dimensions: the here-there dimension and the past-present-future dimension.[21]

For Fischinger, shape and composition become integral elements in the 'field of presence' in *Studie 6*, and exemplify the utterly filmic phenomenon of spatio-temporal comprehension in their 'order of sequences'. The specific sensory qualities of space and time are intensified and brought into a heightened state of significance through the careful modulation of structural composition and shape directionality. Certain shapes are used to define certain movements at certain times. These movements are then, in turn, used to define perceptual directions of shape, and thus a multi-directional, multi-layered compositional configuration of shape is moulded into the spatial and temporal location of the film. Circular shapes exemplify the circular movements of their trajectory, sharply angular shapes move with aggressive diagonal surges, and successive clusters of square shapes move in flattened patterns of linear

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[20] Ibid, p 258.

regimentation. All of the shapes in the film fulfil a specific role in terms of both their immediate sensory effects of structure and subsequent sensory effects of directional movement. As a series of square shapes of various sizes surge upwards across the screen, the formation of shape is altered to guide the viewer's eye both upward in accordance with their movement, as well as horizontally in accordance with their structure. Hence, a remarkable scenario develops whereby the trajectory of perceptual attraction is alternately moving upwards and sideways. The effect is strangely similar to that of reading, as the eye absorbs data in a definite direction of motion, absorbing further units of information in a successive linear pattern. Merleau-Ponty emphasises that: ". . . visible position, size or shape are determined by the direction, scope and hold which our gaze has upon them."[22]

This linear directional hold in *Studie 6* is then subverted by a particularly powerful flow of long curving formations which propel from a focused area to the lower right side of the screen into a wide expansion of shape to the left side. This directional thrust sharply contrasts with the preceding sense of directionality and enforces the awareness of the fact that these images are to be experienced in a profoundly sensory manner which goes beyond straightforward linear 'reading'. Strong alterations of scale again pull the viewer into a detailed relationship with the screen structures as an intermittent circle begins to flash outwardly from the screen. The effect of this circle, in this context, is one of both balance and reconfiguration of the manner in which the eye scans the screen surface. Previously, attention has been led in directional patterns around the screen, yet the emergence of the circle flattens the

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[21] Ibid, p 265.
[22] Ibid, p 315.

gaze and gives equilibrium to the screen surface, allowing the eye to survey the scene in a less hierarchical pattern of awareness. Circularity itself, then, becomes thematised upon the screen as Fischinger seeks to explore the circle not only as a figure of shape, but as an implied sensory experience. For Merleau-Ponty:

> . . . something which is apprehended as a circle would cease to count for us as a circle the moment 'roundness' or the identity of all the diameters, which is essential to the circle, ceased to be present in it. Whether the circle be perceived or visualised, is a matter of indifference; a common specificness needs to be present which forces us in either case to characterise as a circle the thing presented to us, and to distinguish it from any other phenomenon.[23]

The circles in *Studie 6* are explored as oblique extensions of the specific arrangement of other shapes. Squares and triangles are configured in detailed precise clusters which move to imply the contours of a circle, and of concentric circles. As this process rapidly expands and intensifies, the screen is divided and subdivided into an ever-increasing series of implied continuous circles. This geometric repetition again modifies the visual response as the screen surface is contrived into a symmetrical sheet of repeating structures. The repetitional quality of this geometry encourages the eye to gauge the holistic connectivity of the screen space, and acknowledge the events and objects within the frame as implicitly contained and inevitably connected. Of such perceptual connectivity, Merleau-Ponty observes:

> The sensory 'properties' of a thing together constitute one and the same thing, just as my gaze, . . . and all my other senses are together the powers of one and the same body integrated into one and the same action.[24]

Fischinger then fractures and fragments the integrated geometrical unity of *Studie 6* by introducing a particularly painterly array of apparently autonomous, disconnected shape structures which are profoundly asymmetrical and operate in a diversely dynamic manner clearly distinct from the previous rhythmic pattern. In this manner, a loose oval form alternately expands then contracts before moving diagonally and rotating into an off-centre diagonal motion. Compact crescent shapes and long curving lines then move in simultaneously opposing directions as Fischinger seeks to bond the film's directional fluidity and dynamism into a focalised pulse of stability. The directionality of the gaze is an element of perception which Merleau-Ponty regards as vital:

> . . . our perception would not comprise either outlines, figures, backgrounds or objects, and would consequently not be perception of anything, or indeed exist at all, if the subject of perception were not this gaze which takes a grip upon things only in so far as they have a general direction; and this general direction in space is not a contingent characteristic of the object, it is the means whereby I recognise it and am conscious of it as an object.[25]

The closing moments of *Studie 6* consist of an intriguingly delicate array of fine painterly wisps of form which move with a smoky ethereality, punctuated briefly by slightly more solid circles of form which pulse in ever-decreasing scale away from the viewer with an asymmetrical nuance. The elegance of these wispy curves of form render the screen both surface and space, both focal point and amorphously undulating expanse. This final phase stands out as a brief concluding signifier of the film's pattern of compositional variation and interposition. *Studie 6* is extraordinary

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[23] Ibid, p 271.
[24] Ibid, pp 317-8.
[25] Ibid, P 253.

in its impulsive pace, and vibrant in its potently relentless directionality. Yet the most significant quality of the film may be located in its enduring fascination with the compositional powers of structural rhythm, reciprocation and relationship. In his *Paris Lectures*, Edmund Husserl asserted the value of structural systems in perceptual experience:

> . . . before anything can be, for me, a truly existing object, it must fulfil certain necessary a priori conditions. It must appear in the form of a specific and relevant structural system dealing with experiential possibilities. An object appears with a multiplicity of specifically related structures that is determined a priori.[26]

Compositional structures are phenomenologically engaged and experienced as patterns of pure perceptual force, becoming expressively resonant within the optically kinetic aesthetic context of film. In *Phenomenology of Perception*, Merleau-Ponty points out that the "visible is what is seized upon *with* the eyes, the sensible is what is seized on *by* the senses".[27] The preceding case studies, in this regard, stand as evidence attesting to the sensory significance of the roles of shape, space, line, and their structural composition, amongst the vital visually expressive tools operative within the phenomenologically accented art of early European avant-garde film.

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[26] Husserl, Edmund, *The Paris Lectures*, Trans P Koestenbaum. (Dordrecht: Kluwer, 1998), p 27.
[27] Merleau-Ponty, Maurice, *Phenomenology of Perception*, pp 6-7.

CONCLUSION

The central aim of this research enquiry has been to analyse the phenomenology of visual perception by focusing intensively upon a specified body of imagery: early European avant-garde film. The main initiating tools for this analysis were derived from psychological theories of visual perception and from philosophical theories of aesthetic interpretation. In their fusion, aspects of these analytic perspectives generated a progressive, unifying methodology of a distinctly phenomenological nature. In this sense, the enquiry has been a particularised process of filmic phenomenology, a study of the phenomena of visual imagery in early European avant-garde film, and of the structures which they optically present in consciousness as immediate sensory experiences.

Observable through sight, perceivable through sense, phenomena include the visible entities of the world around us, as well as thoughts, feelings, memories, and fantasies, all of which stem from the human mind and reside within the realm of direct perceptual experience. It seems clear that the phenomenological optics of films of the early European avant-garde express their visionary vitality by revealing latent elemental aspects of perception as phenomena accessible to consciousness. This process involves the projection of imagery as multi-faceted, dynamically structured fields of vision composed of interactively expressive elements. Elemental visual expressivity permeates and saturates the filmic achievements of the early avant-garde. It is their distinctive elemental expressivity of image which phenomenologically actuates perceptual responsiveness, and which enforces the

structural holistic implications of these film-works. Analysis of each of the key optical components of avant-garde cinematic visualisation encourages the development of an intensive level of detailed image literacy and, furthermore, clarifies the appositeness of their interface. By virtue of the specific synthesis of these components, avant-garde filmic configurations communicate, represent, symbolise, and are ultimately directly expressive through structural forms, dynamic objects, and elemental abstractions. All of these forms of perceptual expression transpire in the works, and all are subject to lucid aesthetic standards of organisation, balance, and rhythm, as well as to the variety of related components rich with their phenomenological properties.

The dynamic perceptual implications of light, colour, and composition prove to be imperative components of visual experience. The revelation of the direct and pervasive nature of such elements renders the analytic interpretation of optical data more incisive and thorough. Perceptual responsiveness crucially engages elemental universals of sensory principles. Examples of early European avant-garde film demonstrate the intrinsic *structures* of visual experience, rather than merely presentational superficials of vision.

Early avant-garde film frequently exemplifies the dynamics of direction, contraction, dilation as universal principles of perceptual tension and visual sensation. These principles, as we have seen, are quintessentially structural in terms of their sensory experience. Furthermore, they expose facets of perceptual process in an intriguingly graphic manner. In this regard, therefore, we are empowered as viewers to identify

the integral modes of perceptual responsiveness through the optical dynamism of elemental cinematic structures. The visual configurations of the films we have examined, thus, are neither perfunctory nor delusive. They are imperative as critical mediators of the facticity of processes of visual perception integral to the imagery of the filmic text. Similarly, the imagery itself directly corresponds with the nuances of sensory experiences in its graphic stream of optical formations: they are reciprocal components of a totalising filmic apprehension of screen sensation.

The sensory optical imagery of early European avant-garde film express elemental aspects of the universal processes of visual perception. In these extraordinary cinematic works of art, the perceptual energies of universal and subjective human experience find their sensory expression in light, colour, and composition, each with their innate temporal variations and kinetic nuances. These prime principles epitomise the essence of the phenomenological concept of intuiting or directly experiencing phenomena perceived purely through the *sense* of sight. They incisively impart an understanding of visible experience transmitted through visible expression.

Ultimately, these are the vital visually expressive components of the mesmeric achievements of early European avant-garde film innovation. Indeed, such unique innovations surely endure as artefacts of immense historical stature, and exemplify the essence of pure cinematic perception: the phenomena of the sensory screen.

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Full works by avant-garde abstract film-makers cited in the text.

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Abstract (1927)

Viking Eggeling

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Oskar Fischinger

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Orgelstäbe (1927)

Spiritual Constructions (1926-30)

Studien (1926-30, various)

Munich-Berlin Walk (1927)

R-1 Ein Formspiel (1927)

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Studie 5 (1930)

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An Optical Poem (1937)

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Fernand Léger

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Tal Farlow (1980)

László Moholy-Nagy

Dynamics of the Big City (1924-27, unfilmed scenario)

Berlin Still Life (1926)

Lichtspiele (1928-32, various)

Old Harbour of Marseilles (1929)

Lichtspiel: Schwarz-Weiss-Grau (1930)

Man Ray

Le Retour à la Raison (1923)

Emak Bakia (1927)

L'Etoile de Mer (1928)

Les Mystères du Château de Dés (1929)

Hans Richter

Untitled (1920, based on the scroll picture *Preludium*)

Rhythmus 21 (1921, originally: *Film ist Rhythmus*)

Rhythmus 23 (1923)

Rhythmus 25 (1925)

Filmstudie (1925-26)

Inflation (1927-28)

Vormittagsspuk (1927-28)

Rennsymphonie (1928-29)

Zweigroschenzauber (1928-29)

Alles Dreht Sich, Alles Bewegt Sich (1929)

The Storming of La Sarraz (1929, with Sergei Eisenstein; unfinished)

Everyday (1929, with Sergei Eisenstein and Len Lye)

Neues Leben (1930)

Europa Radio (1931)

Metall (1931-33, unfinished)

Hallo Everybody (1933)

Vom Blitz zum Fernsehbild (1936)

Baron Münchhausen (1937, unfinished project)

A Small World in the Dark (1938)

Hans im Glück (1938)

Die Börse als Markt (1939)

The Movies Take a Holiday (1944, anthology of avant-garde films featuring works by Marcel Duchamp, Fernand Léger, Man Ray, and Richter; unfinished)

Dreams That Money Can Buy (1944-47, episodic collaboration with contributions from: Max Ernst, Fernand Léger, Man Ray, Marcel Duchamp and Alexander Calder)

Forty Years of Experiment (1951-61, two-part anthology of avant-garde films featuring works by Richter, Viking Eggeling and Walther Ruttmann)

Dadascope (1956-57, Parts I and II)

8 x 8 (1956-57)

Passionate Pastime (1956-57)

Alexander Calder: From the Circus to the Moon (1962)

Walther Ruttmann

Die Tönnende Welle (1921, experimental pure sound film with tones replacing images, not shown until 1928)

Lichtspiel Opus 1 (1921)

Die Sieger (1922)

Opus 2 (1922)

Das Verlorene Paradies (1923)

Kantorowitz (1923)

Gesolei (1923)

Opus 3 (1923)

Der Falkentraum (1923, dream sequence in Fritz Lang's *Die Nibelungen*)

Opus 4 (1925)

Das Wunder (1925)

Hoppla wir Leben (1927, film insert for a stage production)

Berlin: Symphony of a Great City (1927)

Deutscher Rundfunk (1928)

Weekend (1929, experimental pure sound film)

Melodie der Welt (1929)

In Der Nacht (1931)

Feind im Blut (1931)

Steel (1933)

Altgermanische Baurenkultur (1934)

Metall des Himmels (1934)

Stadt der Verheissung (1935)

Kleiner Film einer grossen Stadt: Düsseldorf (1935)

Stuttgart: Grosstadt Zwischen Wald und Reben (1935)

Volkfest Kannstadt (1935)

Schiff in Not (1936)

Mannesmann (1937)

Hamburg: Weltstrasse See (1938)

Im Zeichen des Vertrauens (1938)

Im Dienste der Menschlichkeit (1938)

Henkel – Ein Deutsches Werk in Seiner Arbeit (1938)

Die Deutsche Waffenschmiede (1940)

Deutsche Panzer (1940)

Aberglaube (1940)

Jeder Achte (1941)

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I declare that I have composed this thesis, that the work it embodies is my own, and that this work has not been submitted for any other degree or professional qualification.

David J.R. Macrae

Frontispiece: *Filmstudie* (1925-26), Hans Richter.